UNIVERSITY COLLEGE LONDON

Cultural influences in Chinese workspace

National, regional, industrial and organisational effects

DISSERTATION THESIS

SUBMITTED TO

THE FACULTY OF THE BUILT ENVIRONMENT, THE BARTLETT

UNIVERSITY COLLEGE LONDON

IN CANDIDACY FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

BY

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LONDON

January 2019

I, Daibin Xie, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Word count: 94989

Abstract word count: 299

Abstract

In the past few decades a growing body of researchers has revealed the significant influence of culture on workspace design. However, the topic has been scarcely examined in China. Addressing the knowledge gap, this research examines the cultural influence on Chinese workspaces and regional, industrial and organisational differences.

Based on the literature review, it is suggested that national, regional and industrial cultures form the pre-organisational context and shape people's initial workspace preferences and perception patterns. But these initial preferences may be moderated by organisational factors. Following the logic, two empirical studies were designed.

The first study quantitatively analysed pre-organisational effects based on data coming from two phases of Workspace-Culture Survey conducted in some Chinese cities (n=834). The results highlighted the importance of spatial qualities of personal territory and social facets of workspace. Regional and industrial preferences in general followed the national trend, but the importance of workspace factors appeared to vary across regions and industries. Regional and industrial effects on workspace satisfaction were significant too. Correlation and hierarchical regression analyses further suggest that different cultural dimensions were associated with different aspects of workspace.

The second study focused on organisational effects. Data from a sample of 286 employees in eight offices of four companies in two industries were analysed. The four companies all have a presence in both Guangzhou and Shanghai. The results revealed the significant influence of organisational factors on employees' workspace cognition, and the importance of psychological adaptation of employees to their workspace.

In the research, a historical review on ancient Chinese administrative buildings was also conducted to aid research design and interpretation of research findings.

The findings enrich knowledge about the different roles of culture in creating successful workspace and can potentially be developed and applied at a practical level to better inform workspace practices in China.

Impact statement

This dissertation has documented workspace preferences and workspace perception patterns of Chinese employees. Based on the literature and empirical data about Chinese employees' workspace preferences and their psychological adaptation to workspace design, the findings enrich knowledge about the different roles of culture at different levels in creating successful workspace in China. This knowledge can potentially better inform workspace management and design at a practical level, especially important because the Chinese workspace has scarcely been examined in the previous literature.

The findings may be particularly valuable for global companies establishing offices in China by inspiring workspace strategists, managers and designers to adopt a dynamic perspective on the influence of Chinese culture on Chinese workspaces compared to concepts and drawn from other places, and to have a more critical attitude to better solve the "global-local" tension when designing and managing workspace in China. For example, change management has been a challenge for global consultancies practicing in China. Yet, based on the accommodative behaviours found in this research, practitioners could better understand how Chinese employees create a person-environment fit and thus deliver a more accurate service to the management of space and behavioural change.

Another important impact of the research findings is that they to some extent make the effects of workspace design on Chinese employees' satisfaction and adaptive behaviours more predictable. This could help organisations and designers to reduce uncertainty in decision-making and to avoid producing an ineffective, unhappy and possibly expensive workspace.

These positive practical impacts may lead to changes in Chinese workspace design that potentially will benefit the whole society and global economy, especially in light of the massive and growing number of office workers and office property stock in China and the large and rising economic power of the country.

These positive outcomes result from the creative academic process. Firstly, the thesis initially deployed a questionnaire, correlation tests and regression models to quantitatively analyse the cultural nexus of workspace satisfaction and preferences, and their further effects on the interaction between space and people in the Chinese workplace. It suggests a new way for researchers to measure the causal relationship between culture, perceptions and adaptive behaviours in workspaces.

Secondly, the research found that employees may dynamically adapt themselves to create a person-environment in a workspace in reaction to the organisational culture and reality they perceive. This widens the horizons of culture-related research and suggests the needs for more

inter-disciplinary academic effort to better understand the cultures of workspace design and management.

Thirdly, the thesis presents an interesting connection between ancient and modern Chinese workspace despite the latter being non-indigenous. Better understanding of historical influences on contemporary workspace may be another research direction worth exploration by future researchers.

Overall, the impact of this research might not be limited in China. It may inspire practitioners and academic researchers in other countries to better understand and resolve cultural issues in workspace design and management, applying new knowledge, insights and methodologies.

Acknowledgement

If I have to use a word to describe my life during my Ph.D., I would say “growth”. It is not simply about the development of knowledge and research skills, but also the maturation of personality, increase of responsibility, expansion of my personal network and influence, and most importantly, skills to manage my life and research in a challenging period.

I would thank my new baby Wins who has brought me many joys, although her coming and the leaving of another close family member caused some difficulty in managing my time to finish my research. Luckily, I have a good wife who sacrificed both time and job to accompany me to London and played a brilliant role looking after our two children.

I owe my deepest gratitude to my supervisors Prof. Alexi Marmot and Peter McLennan for their understanding and patience. Apart from my personal problems, the biggest challenge of this research has been to overcome the cultural barriers between East and West. After all, the whole knowledge system of workspace strategy has been developed in Western countries. To apply it in the study of workspace in China, great effort had been made to refine the theories. Without the encouragement, inspiration and support of my supervisors, I might not have enough wisdom to work across the two cultures with my Eastern head.

I am also grateful to my friends Mr. Tuo Zhang and Mr. Qiunian Li who helped with financial support for my work. Furthermore, I am indebted to many of my friends, notably Gary He and Hongkai Li who helped me to collect data in their companies in the first phase of fieldwork; and Xiaoling Ye, Xiaoshan Fang, Lydia Hua and Ru Xu for providing case studies in the second phase of fieldwork. The field research also involved many other persons. I would like to thank them for making the two stages of fieldworks possible.

Content

Content of figures

Content of tables

1 Introduction

1.1 The myth of China

Over the last four decades, no place in the world has experienced more successful economic reform than China. Today China has become the second biggest national economy in the world, and it is consistently held up as a very visible example of how a country with time-honoured history can be transformed into a modern society. The social changes happen in every corner, ranging from family life to social institutions. Particularly, rapid urbanisation has resulted in a massive migration wave. Millions of people have left their hometown or farmland to work inside office buildings in big cities. Based on the statistics of the International Labour Organisation (ILO), Marmot (2016) estimated that, by 2005 there had been about 70 million office workers in China, accounting for about 10% of the total workforce in the country, and the number is escalating fast with the rapid economic development (Figure 1). It is suggested that as countries grow wealthier, the proportion of office workers in total workforce increases (Marmot, 2016). In developed countries such as Singapore, Luxembourg and Switzerland, where the GDP per capital is higher than 50,000 US dollars, office workers accounts nearly two-third of the workforce (Marmot, 2016). Yet, the current GDP per capital of the Mainland China is only 8,800 US dollars. A huge increase of office worker number could be expected in China in the future.

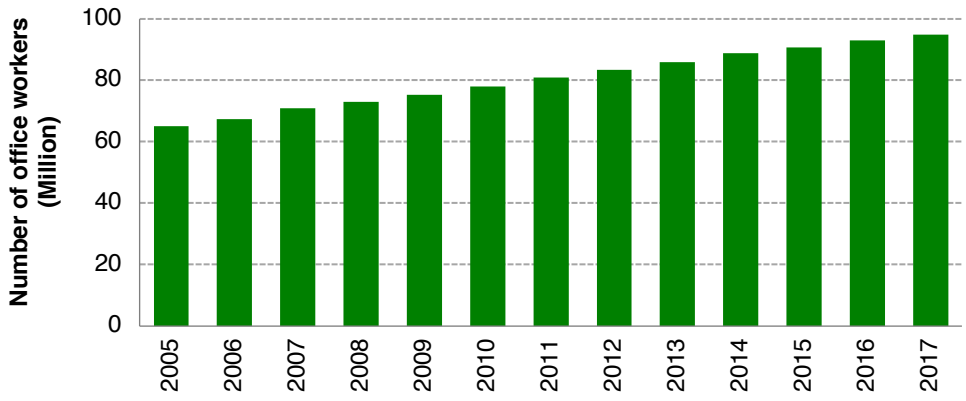


Figure 1.1 Growth of office worker number in China

(Source: based on the estimation of IOLSTAT 2018, office workers are defined as the category of skill level 3 & 4 covering managers, professionals, technicians and associate professionals. Comparing to the estimation of Marmot (2006)，the category “clerical supporting worker” is excluded from the statistics due to the lack of data in IOLSTAT 2018.

Data from https://www.ilo.org/ilostat/faces/ilostat-home/home?_adf.ctrl-state=3f92fur9w_95&_afrLoop=313234821743739#!)

There has been a boost of office buildings in China at the same time. Nobody knows exactly how much office space is used all over the country. CBRE (2013，2017) reported that during 2013 to 2016, the total stock of prime office buildings in 14 Chinese cities[1] has increased by about 35%, rising from approximately 50 million square metres to 67 million square metres (external gross floor area).

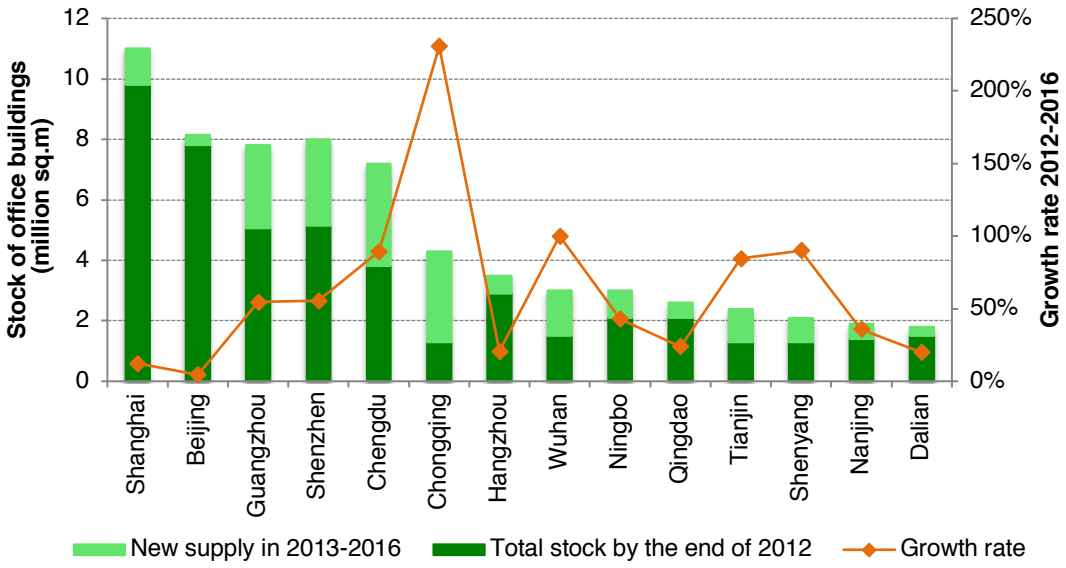


Figure 1.2 Stock of prime office buildings in 14 Chinese cities
(Source: based on CBRE, 2013, 2017)

Despite the massive growth of office jobs and premises, however, Chinese workspace has been scarcely studied. So far, little is known about what makes a “good workspace” in China. Most of our understanding about it is highly anecdotal and speculative. For example, many researchers have mentioned that *Fengshui* is an important traditional environmental belief that may affect modern Chinese workspace design (e.g. Herman Miller, 2010, Marmot and Eley, 2000, Hendrickson, 2000) , but few of them have empirically studied how the concept works in reality. As a result, we actually do not know how important it is. In fact, there have been some other writers suggesting that *Fengshui* beliefs may be fading among young Chinese (Lee and Bishop, 2001).

[1] The 14 cities are Shanghai, Beijing, Guangzhou, Shenzhen, Chengdu, Tianjin, Chongqing, Hangzhou, Shenyang, Wuhan, Ningbo, Qingdao, Nanjing, and Dalian.

Another example is Chinese employees' attitude towards privacy. There are different points of view about it in the literature. While some writers state that the collectivist culture in which individuals are tightly tied into their social groups in social life, has rendered privacy become less important in the Chinese workplace, and this may account for the popularity of open-plan office in the country (Herman Miller, 2010), some others argue that self-interest often drives Chinese workplace behaviours (Wright et al., 2008) and the importance of territoriality and privacy should not be underestimated in spatial design according to the country's architectural tradition (Goodsell, 1988).

Apparently, there is much vague in our knowledge system. To date, what Chinese office workers prefer to have at the workplace, how workspaces are perceived, used and evaluated exactly by Chinese office workers, and how workspaces affect Chinese office workers' behaviours at the workplace are still mysterious to us.

It is timely to fulfil the knowledge gap. In line with continued growth of knowledge economy, the more and more business success relies on employees' talent, and creasing "good workspace" to arouse employees' social and intelligent skills is increasingly recognised as an essential for business success (Hofbauer, 2000). Some writers speculates that a mismatch between employees' needs and their workspace design may have a negative impact on employees' well-being and productivity, and result in dragging down organisational performance (Plijter et al., 2014). Thus, considering the huge number of office workers and their increasing contribution to the economy, understanding the quality of workspace compatible with the needs and preferences of Chinese office workers in fact has become a serious economic and social concern. Moreover, by the end of 2015, there had already been over 480 thousand foreign direct investment companies (FDIC) running business in mainland China (National Bureau of Statistic of China, 2016), and the number is likely to have grown subsequently. For these companies, understanding the workspace preferences and behaviours of their Chinese employees is a key task for localising company strategy to ensure business success.

The question "what makes a good workspace" is not simply about what employees want and what they do at the workplace. Beyond that, it is necessary to further know why they think and act like that – the driven forces behind the phenomena. Only by doing this, practitioners are able to strategically plan workspace by deciding what is important and should be fulfilled and what is not important in a particular circumstance.

There are many factors that may affect the preference for workspace qualities and behaviours, for example, market conditions, legal regulations, urban settings, labour

relationships and etc (Van Meel, 2000), and amongst them, the influence of culture has received increasing attention from research bodies and is regarded as a critical factor shaping workspaces.

Building space has been widely regarded as the artefact of culture by anthropologists. For instance, E. D. Hall (1990) contended that people from different cultures “inhabit different sensory worlds” (p2) and thus create architectural environments differently. He particularly elaborated how culture difference affects space perception and office layouts in Japan, the US and European countries, and see space as a “hidden dimension” of culture (Hall, 1990). In addition, he argued that while fitting the space to activities it houses is an important task for architects, the series of inactive events occurring in the space, either between participants or between people and space, which he called “action chains”, are culturally patterned too (Hall, 1976).

Workspace researchers also have empirically found the importance influence of national culture on workspace design. For example, Varner and Beamer (2005) stated that while Americans with an individualistic culture stress physical privacy at workplace, the collectivistic Japanese in turn place more emphasis on group integration in workspace design. Plijter et al. (2014) found that in the UK where the national culture is masculine and men are supposed to be assertive and focused on material success, more status symbols are used in offices than in countries where the culture is feminine and men are supposed to be tender like the Netherlands. Riratanaphong and Van der Voordt (2011) also suggested the potential link between the priority of workspace conform and the masculine level of cultures based in case studies in Thailand and the Netherland. It seems that what people see as meaningful and what they like and dislike at the wrokplace, are affected by their cultural values.

We do not know to what extent the Chinese culture has influenced the criteria for “good workspaces” in China due to the lack of research, but the importance of culturally issues in the study of Chinese workspace can be assumed.

Firstly, China has a rich and bountiful cultural legacy and distinctive architectural traditions, and their influence on the contemporary workplace seems persistent. Figure 1.3 compares the image of a group of modern administrative buildings to its counterpart in ancient time. One can easily find their similarities. There is also evidence for the continued influence of indigenous concepts such as “*face”* (being respectable) and “*Guangxi”* (interpersonal relationship) at the workplace in the literature. It is suggested that at Chinese workplace “*face*” can be put to good effect through displays of public recognition for works and status

symbols (Sergeant and Frenkel, 1998).

Figure 1.3 Comparison of ancient and modern Chinese administrative buildings
(Left: Fuliang County Office, 19th century, https://baike.baidu.com/item/浮梁古县衙;
Right: Luogang Administrative Centre, Guangzhou, 2000s, http://news.ycwb.com/2016-08/18/content_22805548.htm）

Secondly, irrespective of the historical effects, the modern Chinese culture is distinctive too. Hofstede and his colleagues (The Hofstede Centre, 2016), found that the Chinese culture is highly strong in *Power Distance Index,* suggesting that having inequality and hierarchy is normal practice at Chinese workplaces. Besides, they found that the Chinese culture has a strong masculine and collectivist tendency, opposite to Western cultures like European nations and the US. It is quite possible these unique cultural characteristics will let to a set of distinctive workspace preferences.

Therefore, it would worth a research on the relationship between the Chinese culture and Chinese workspace preferences and behaviours so as to get a deep insight about how to create a success workspace in China, which has not been addressed in the literature.

1.2 The global-local tension

However, the way to crack to the cultural nut is not straight forward. The first difficulty is, we now face some paradoxes. While cultural differences between nations and regions are acknowledged (e.g. Child, 1981, Sparrow et al., 1994, Mooija and Hofstede, 2002, Ralston et al., 2006, Hofstede, 1984), the past few decades have also witnessed the convergence of global culture (e.g. Levitt, 1983, Assael, 1998). For example, people in different countries increasingly consume identical products and services such as Coca-Cola and McDonald, and their lifestyles are becoming similar. Further, some researchers suggest that, many people today are “born global” in that they have been widely exposed to different cultures through the Internet or other media (Maccoby, 2006). China, inevitably, is changing its

culture too. Faure and Fang (2008) contend that China is continuously melding modern values and work-life concepts into its cultural legacy in its modernisation process and this has changed the Chinese lifestyle greatly in aspects such as fashion, food and housing. Sun and Wang (2010) found that compared to their parents' generation, young Chinese people tend to embrace less traditional values and have a higher tolerance for cultural diversity. As a result, it is likely that the merging of the new and the old, the foreign and the indigenous, has shaped a distinctive modern Chinese concept of a good office that is neither the same to those of other counties nor the same as the traditional Chinese concept.

A global-local tension emerges in this paradoxical change. On the one hand, on-going globalisation is appealing to organisations as it enables them to standardise their managerial strategies for business efficiency, which is particularly important for the consistency of organisational culture and brand (Becker and Sims, 2001) and the efficiency of office expansion and management (Evans, 2012). On the other hand, local differences might in turn negatively affect managerial effectiveness. Therefore, the business world increasingly believes that, to gain competitive advantage, organisations have to keep cultural sensitivity (Adler and Gundersen, 2002) and "glocalising" themselves -- tailoring and advertising goods, services and management on a global or near-global basis to increasingly differentiated markets (Robertson, 2012). In the same vein, to design workspace that is considered to be effective and attractive, organisations have to make a balance between the "global" and the "local". Knowing what could be standardised and what should be localised, and which aspects are affected by traditions and which are affected by modern culture, becomes a key to resolve the tension.

Following the above logic, cultures can be conceived as a "structural silos" (Evans, 2012) and the concern is not only about what is inside the silos, but also about how easily the cultural boundaries can be broken or how the local preferences could be synergised. Therefore, for this research, two issues are central:

1) The needs and preferences of office workers in China.

2) The extent to which local needs and preferences are important, and how the importance changes according to the environment.

They are of equal importance as the ultimate aim of studying culture is not only to know cultural diversity, but also to reduce the negative cultural impact as much as possible while taking use of the positive side of culture.

1.3 The regional differences of Chinese culture

The cultural complexity of China is not limited to the global vs. local paradox. The internal heterogeneity also adds to the difficulty to fully understanding it. Chinese scholars have suggested that there are at least 12 subcultural zones in the country's agricultural area (Figure 1.3) (Wang, 1992), which are shaped historically by geographical separation, migration，political power, religion and the influence of foreign civilisations (Needham and Wang, 1954). The subcultures have significantly shaped the regional differences in managerial behaviours such as leadership (Li et al., 2011; Littrell, 2007; Littrell et al., 2012), organsational commiment (Gong et al., 2011; Gamble and Tian, 2012) and the business ethic (Redfern and Crawford, 2010). Kwon (2012) empirically compared employees' work-related values between Taiyuan (in Northern China) and Shenzhen (in Southern China). He concluded that Chinese employees cannot be simplistically and monolithically considered as the same regardless of regions and that multinational organisations need to develop differentiated programs that are congruent with cultural differences across regions in China to improve their performance (Kwon, 2012). It is quite possible that the regional differences will also manifest themselves in workspace design. For example, as individualism is supposed to be associated with the need for privacy at the workplace, employees in Shenzhen with a more individualistic culture perhaps will have stronger demand for privacy than do their hinterland counterparts.

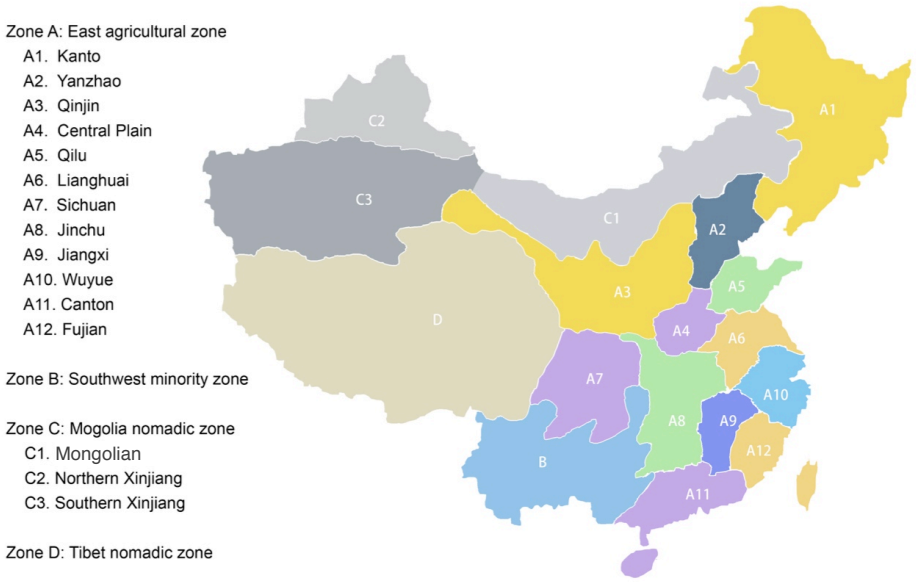


Figure 1.4 Chinese subcultural zones
(Source: Wang, 1992: p229)

But to date, the influence of these regional differences on workspace design has scarcely been explored. China has often been considered to exhibit a simplistic homogeneous culture (Fukuda and Wheeler, 1988) in the literature even though many subcultural differences do exist with the country and some are even bigger than the differences between countries (Huo and Randall, 1991).

1.4 The cultural complexity in organisations

While the influence of national and regional cultures on workspace design can be anticipated, when looking into orgnisations, it is found that there always a “flexing net” composed of many different cultural and structural elements, each with varying degree of influence to moderate local effects (Zimring and Peatross, 1997). Particularly, the important influence of industrial culture and organisational culture has been highlighted by organisational researchers (e.g. Hofstede, 2008). As a result, a dynamic process of workspace accommodation can be expected. On the one hand, employees will bring their initial spatial preferences cultivated by their previous living and educational experiences into organisations; on the other hand, the organisational culture and environment may also reshape their minds.

For instance, normally, when moving to a new office or getting a new workstation, people would evaluate it by asking such questions: Is this what I want? Is it good? Does it work for me? No wonder the judegement is affected by their local culture. One would not expect that a American worker and a Janpanese will view a space in the same way. Besides, industrial differences may also affect the judgement. For example, the offices of a lawyer and an architect usually are different due to different occupational values they hold. While lawyers prefer clearly spatial structure and private rooms to emphasise reliability, architects tend to like a more flexible design to facilitate creativity (Van der Voordt et al., 2003).

But while there are similarities of workspace preferences amongst people in the same region or industry, the physical working environment appears to vary from organisation to organisation. Different organisations tend to design workspace in different ways in order to express their organisational culture (Rafaeli and Worline, 2000). The limitation of budget and available space area also affects the decision-making of organisations. As a result, there would never be a 100% fit between the organisational workspace and employees’ preferences. Nathan and Doyle (2002), for example, reiterated that tensions between employees and their organisation can exist between individual requirements for privacy and territory, and the organisational preferences for open-plan collaborative workspace.

Because of the possible disparities, in most instances, employees have to adapt themselves to their "given space" (Leaman, 1995) while also modifying the space to fit themselves when it is possible. They might adapt themselves passively to cope with uncomfortable environment conditions such as noise (Sundstrom, 1985), or proactively behave following the regulatory guidance provided by the organisational culture (Schein, 2010).

The process could be compared to people's interactive behaviours. According to the Communication Accommodation Theory (CAT) (Gallois et al., 2014), which is well known in sociology, people would naturally bring their values, behaviour patterns and preferences into a norm-constrained dynamic interaction environment at the initial stage. However, they would also evalute their counterpart's behaviours and languages (verbal and non-verbal) and then develop accommodative strategies and further behavioural tactics (Gallois et al., 2014).

Similarly, workspace users may develop their workspace preferences and needs based on their own culture, but what they priortise and what they are likely to compromise on in the organisational environment are not context free. Their actual accommodative behaviours to a large extent are triggered by the perception of the organisational environment. For instance, some researchers found that the personalisation of workspace to a large extent is affected by workspace type and organisational policy and culture (e.g. Scheiberg, 1990; Wells, 2000). People having private rooms tend to display more personal stuff at the workplace (Brunia and Hartjes-Gosselink, 2009).

As such, it appears that there are three key issues affecting the success of workspace accommodation in organisations:

1. Employees' initial workspace preferences, pertaining to what employees like and dislike, and what they prioritise under the conditioning of pre-organisational culture context. They are the mental-programming about ideal workspace an employee holds before entering the workspace he / she is working in.

2. Employees' workspace cognition, pertaining to the process that employees perceive and evaluate the workspace they are working in. It involves how space information is collected, how meaning of spatial cues are interpreted and how space quality is evaluated. It is a subjective process that employees create the projection of their workspace in mind based on objective realities.

3. Employees' accommodative tactics, including how employees change their workspace preferences psychologically and how they change workspace physically in

organisations based on perceived spatial quality and organisational environment to create person-environment fit.

These three reflect the different processes of workspace accommodation in employee side. They form a "action chain" (Hall, 1976) triggered by spatial simulations. Figure 1.5 illustrates their relationships.

As subjective constructs, employees' initial workspace preferences may be shaped before joining a company, affected by local (national / regional) and industrial cultures. But what people perceive and how they react are largely affected by organisational environment (intra-organisational context) as they cannot perceive and react to things that do not exist in the space. The complexity is that, the way in which they perceive and interpret space are intricately bound up in the process of cultural learning, such as at home and at school (Hofstede, 2008). Cultural learning determines "what we pay attention to and what we ignore" (Hall, 1990: p86) and how we decode spatial meanings (Rapoport, 2005). Even our preference for accommodative tactics is affected by national and regional cultures too. For instance, Weisz et al. (1984) found that while some people from cultures such as the U.S. prefer to change the environment to fit people, others such as the Japanese like to adapt people to fit the environment better.

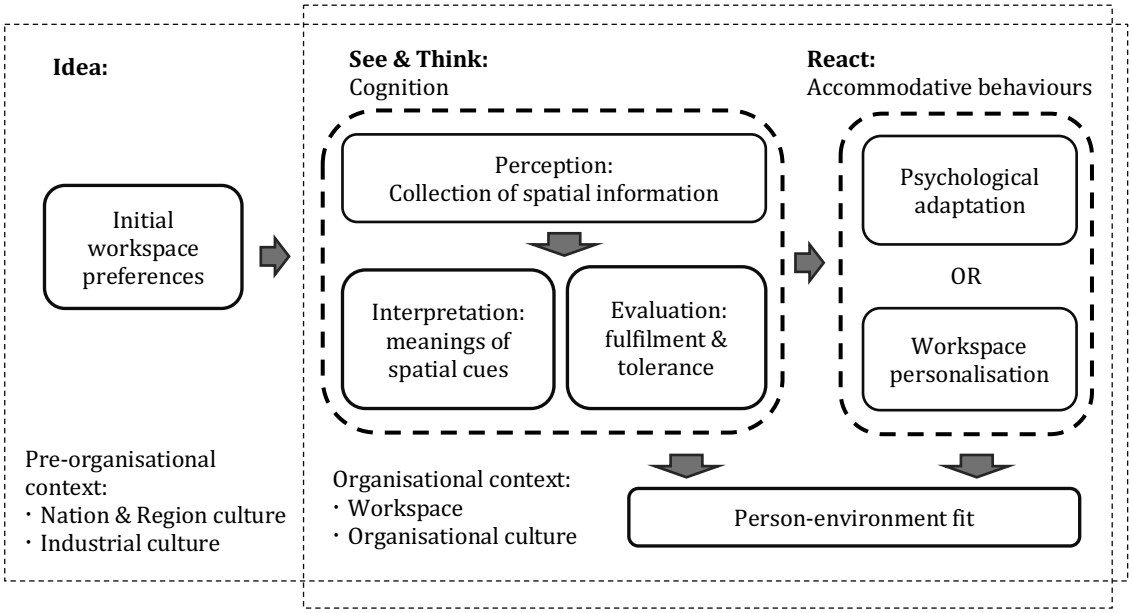


Figure 1.5 Framework: the action chain of workspace accommodation

Therefore, employees' workspace behaviours in fact are driven by a series of cognitive process dynamicaly conditioned by different levels of culture, particularlly, national, regional, industrial and oraganisational cultures. Findings about how these different levels of culture interactively affect employees' workspace preferences, perception and adaptation, e.g. how the organisational culture and environment is perceived through space, and what preferences are stable and what are changeable across different organisations, might enable organisations to better align spatial design with cultural design, make design effects more predictable when implemented, and better inform organisations' global workspace strategies regarding the balance between "global" and "local".

1.5 Research questions

Following the above argument, this research especially discusses how the above three issues are affected by Chinese culture including its historical precedents and regional differences, and how the effects are moderated by industrial and organisational cultures. The research questions therefore are formulated as:

1. How do different levels of culture influence Chinese employees' initial workspace preferences?

2. How do different levels of culture influence Chinese employees' workspace cognition?

3. How do different levels of culture influence Chinese employees' accommodative behaviours at the workplace?

1.6 Research scope

This research adopts a user-function (Pfnuer et al., 2004) stance by focusing on how cultures affect office workers' behaviours. Issues concerning owner function (Pfnuer et al., 2004) such as the return of investment and the interests of stakeholders like the boardroom are not addressed in this research. And because of this stance, how organisational culture affect workspace design are not addressed in this research. The correlations between organisational culture and workspace characteristics revealed in this research reflect how employees' perception of organisational culture are affected by workspace design.

At the same time, the research does not attempt to evaluate the quality or cure the ills of the Chinese workspace. The main aim is to unpack the cultural influences on Chinese workspace. Due to time and resource limitations, the study does not seek to understand the

full complexity of workspace design in China across its vast regions. Rather, it is an initial attempt to crack the cultural nut. The result might be culturally bounded and should not be interpreted as the general trend of Chinese workspace.

The main focus of the research is the influences of national, regional, industrial and organisational cultures. Other issues such as migration, age and gender are not specifically addressed, although their influences might be significant too (Rothe and Nenonen, 2011).

Culture change is not addressed directly in this research. Clearly, it needs a longitudinal study to compare data collected along a timeline, like one or two decades, impossible within the time limit of PhD study.

The research focuses on the workspace behaviours of Chinese employees. Therefore, foreigners working in Chinese workspace were excluded from the survey in fieldworks. All the data came from employees with Chinese nationality. The cultural shock to foreign office workers and their adaptive behaviours at Chinese workplace are not in the scope of study.

1.7 Clarification of terms

Culture: In this dissertation, the term “culture” refers to culture in general in places where the author does not specify national culture, organisational culture, regional culture, etc.

Employees: The term refers to whiter-collar office workers in this dissertation.

Employees in China, office workers in China: These two terms refer to office workers with Chinese nationality. They do not incorporate office workers with other nationalities.

Organisational culture: Although workspace as an artefact and organisational practice is part of organisational culture, in order to emphasis the different effect of cultural norms and workspace, in this dissertation, workspace is treated as a separate concept from organisational culture. The term “organisational culture” refer to Cameron and Quinn’s (2006) four organiaitonal culture characteristics measured in this reserach.

Values: The term refers to values in general in places where the author does not specify the level of culture e.g. national culture, regional culture, industrial culture, etc.

Workspace: In this dissertation, the author has tried to avoid using “workplace” or “office” to describe the physical work environment of organisations as they might also refer to the abstract organisations of people. I use *workspace* to emphasise that the domain of study is the physical space used by office workers.

1.8 Outline of the thesis

After this opening chapter, Chapter 2 reviews literatures that impinge on the topic. It at first, reviews the nature of four levels of culture critically addressed by this research and their interrelationships. This is followed by a review of existing research work in terms of the relationship between culture and workspace preferences, workspace cognition and workspace accommodative behaviours.

Chapter 3 is a brief historical overview of traditional Chinese culture and spatial beliefs, and their influence on the development of ancient administrative buildings. The aim is to provide a general context for the research and generate the traditional patterns of Chinese workspace design, which allows further examination of the importance of historical culture in current workspace design.

Chapter 4 describes the empirical research methodologies used. It firstly justifies the research methodologies selected. Then it follows how fieldwork was planned and how data were analysed in separated studies to answer to research questions. The selection of case studies, survey items and data treatment technologies and research are presented too.

Chapter 5 presents the process and findings of the first study. The study seeks to understand Chinese employees' initial workspace preferences in general and the regional and industrial differences.

Chapter 6 presents the process and findings of *Study 2*. The study was conducted in eight offices of four companies that all had offices in both Shanghai and Guangzhou. The four companies come from two industries, namely graphic design and manufacturing. The physical workspace characteristics and organisational culture of each office, and employee's workspace expectation and satisfaction as well as their cultural values and organisational culture are compared. Addition correlation analyses were conducted to analyse their relationships.

Chapter 7 compares the findings of the two studies in an attempt to answer the research questions.

Chapter 8 is the conclusions of the research. It summarises the research findings and their implications for practice and research. Limitations of the research and recommendations for future studies are discussed.

The whole structure of the thesis is presented in Figure 1.6.

Chapter 1 Introduction

Introduction of research background, research questions and research scopes

Chapter 2 Literature review

- Understand the nature of different levels of culture
- Review research works on related topics and understand how culture affects workspace preferences, cognition and accommodative behaviours
- Identify knowledge gaps

Chapter 3 Historical review

- Literature review of traditional Chinese culture and ancient Chinese administrative buildings
- Brief review of the recent changes of Chinese culture and workspace

Chapter 4 Research methodologies

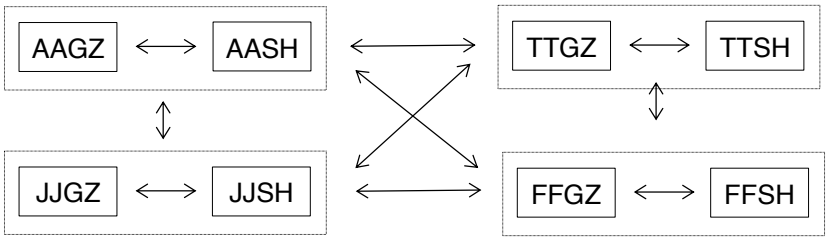
Introduces the empirical research methodologies adopted by this research and the planning of research process

Chapter 5 Study 1

Research on national, regional and industrial effects on Chinese employees' initial workspace preferences

Chapter 6 Study 2

Comparisons between eight offices to understand the influence of organisational factors on employees' workspace cognition and accommodative behaviours



Chapter 7 Discussion

- Comparison on the results of Study 1 and Study 2 and discussion of effects of culture on Chinese workspace
- Theorising the roles of different levels of culture
- Discussion of research limitations and recommendation for future research

Chapter 8 Conclusion

Figure 1.6 Structure of the Ph.D. thesis

2 Literature review

Before starting to investigate the cultural influence on Chinese workspace, a fundamental question for the research is: what is culture? In different societies, people dress in different clothes, eat different food, worship different gods, live in different types of houses and have different social norms. Usually people call these differences “cultural diversity”. But defining culture in this way appears rather loose. Culture is a broad concept and potentially as hard to grasp as sand. It could not be studied unless it is grasped. But different hands might grasp the sand in different ways. Therefore, it is necessary first to define what is culture for any culture-related research. To the end, this chapter will review how different levels of culture are defined and analysed in anthropology and organisational studies to underpin the research. The literature review is followed by a theoretical review of cultural influences on workspace preferences, cognition and accommodative behaviours. The purpose is to understand in what way these key aspects are possibly affected by different levels of culture. Knowledge gaps relating to the research are discussed at the end of the chapter. The structure of the Chapter is shown in Figure 2.1

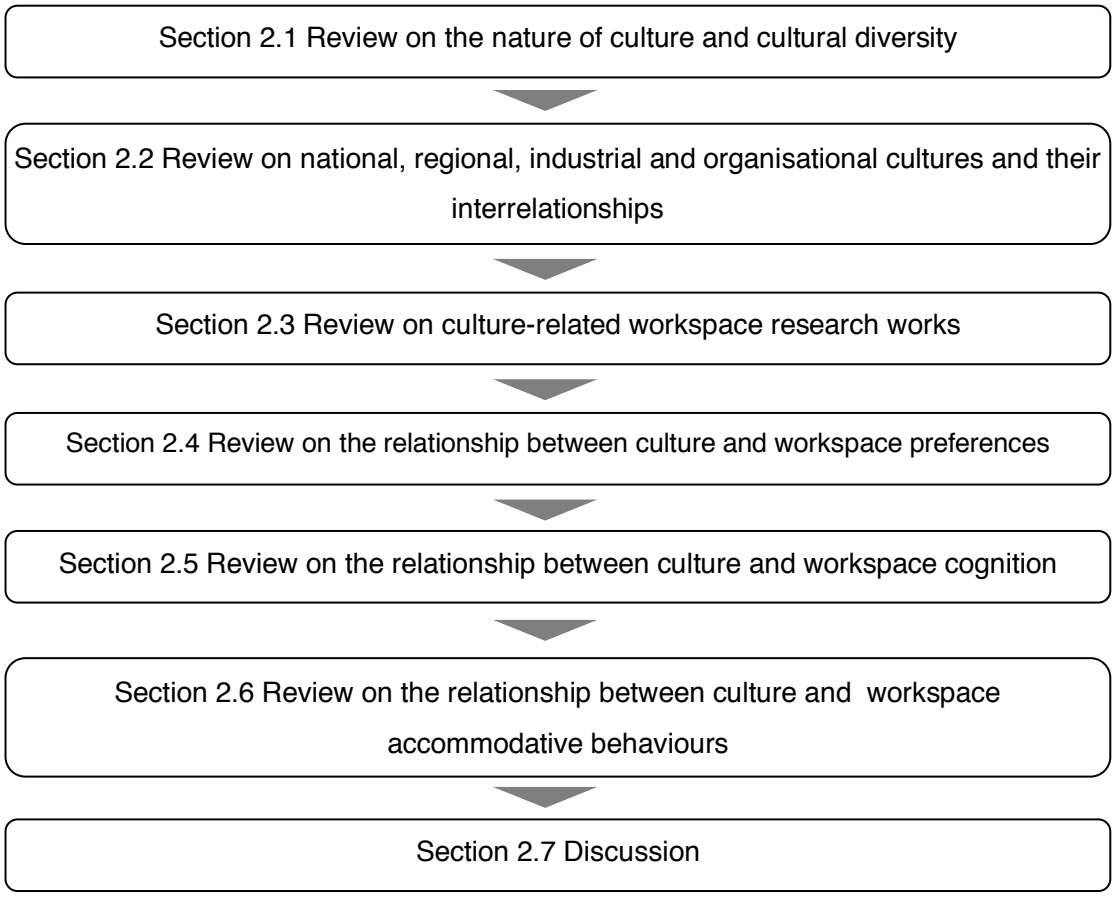


Figure 2.1 Structure of the literature review

2.1 The nature of culture and cultural diversity

In anthropology, sociology, psychology and business literature, a wide range of definitions of cultures have been used (Gelfand et al., 2007). Culture has been defined as the human-made part of the environment (Herkovits 1955), including both objective and subjective elements (Triandis et al., 1972); as a set of a shared meaning conceptions, and interpretive schemes (Shweder and Haidt, 2000) or socially learnable knowledge shared among members of a society (Lumsden, 1989); as patterns of thinking, behaviour, artefacts and values (Kluckhohn and Strodbeck, 1961) that are historically derived (Miyamoto and Eggen, 2013).

Organisational scientists tend to see cultural as a kind of mental scheme that guiding employees' organisational behaviours. For instance, Schein (1990) suggested that "culture is a pattern of basic assumptions that the group has invented, discovered, or developed in learning to cope with its problems of external adaptation or internal integration, and that worked well enough to be valid, and therefore to be taught to new members as the correct way to perceive, think and feel in relation to those problems" (p109) . Hofstede (2008) defined culture as "the collective programming of the mind which distinguishes the members of one human group from another… the interactive aggregate of common characteristics that influence a human group's response to its environment" (p9).

In the field of environmental design, architectural anthropologist Rapoport (1980: p9) particularly elaborated that culture is "a system of symbol, meanings and cognitive schemata transmitted through symbolic codes", and "a set of adaptive strategies for survival related to ecology and resource" held by members of the social group.

Although definitions of culture vary and researchers in different domains have different focuses, there are some features they commonly stress. It is generally believed that:

1) Culture fundamentally concerns human being's "mental schemata" in response to external environments and is intermediated by symbols, artefacts and actions.

2) Culture is composed of sets of patterns in both mental programs and physical worlds, which are shared by all members of a given social group.

3) Culture is learnt through enculturation and passed down from history. It serves a function to socialise members.

Hofstede (2008) proposed that the manifestations of culture consist of four categories, from

the shallow to deep: symbols, heroes, rituals, and values. Symbols are words, gestures, pictures and any other objects we see, we hear, or we experience to convey meanings. Workspace as a material artefact could be classified into this category. Underneath the symbolic system are heroes — people who serve as models to demonstrate desirable behaviours. Rituals are technically superfluous but socially essential within a culture to keep the individual bound within the norms of the collectivity, like the way of greeting or paying respect to other people. The core of culture is formed by values, reflecting broad, nonspecific feelings of right and wrong, good and evil, beautiful and ugly, normal and abnormal, or rational and irrational (Hofstede, 2008). They form standards and criteria to guide the selection or evaluation of actions, things and people in given situations or events (Schwartz, 2006a). Symbols, heroes, and rituals can be subsumed under the domain of "practices" as they are visible. Values are invisible but are manifested in practices (Hofstede, 2008)

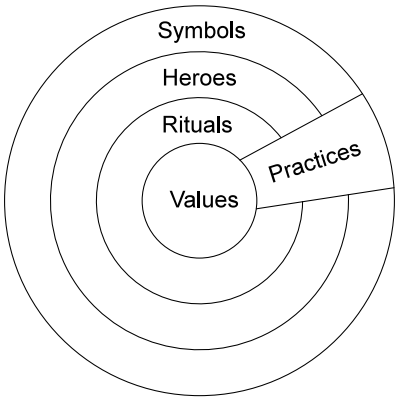


Figure 2.2 Manifestations of culture: from shallow to deep
(Source: Hofstede, 2008: p11)

Each society might embrace a certain set of values while deemphasising others (Kluckhohn and Strodbeck, 1961). The different value orientations would drive people in different societies to choose different default action in respond to a stimuli and thereby result in cultural difference (Rozin, 2003). Schwartz (2006b) argued that:

> *"Cultural value orientations evolve as societies confront basic issues or problems in regulating human activity…the ways that societies respond to these basic issues or problems can be used to identify dimensions on which cultures may differ from one another" (p140).*

In other words, cultural diversities are not random — they are the different solutions adopted by different societies for common issues such as food, education, housing and government. Kluckhohn and Strodbeck (1961) argued that the number of common human problems is limited but all peoples must at all times find some solution. Each society has a dominant profile or value orientation and numerous variations, ranking order of preference for alternatives. Because of this, identifying the universal values pertaining to common human problems became a particular interest of anthropologists. Kluckhohn and Strodbeck (1961) suggested that there are six dimensions of human values in all societies, which are: 1) perception of individuals, 2) human-environment relationship, 3) interpersonal relationship, 4) primary type of activity, 5) attitude towards time, and 6) perception of space. Different societies have different value orientations toward these six dimensions.

Hall (1976, 1990) also sees the use of time and space as cultural dimensions. He suggested that there are *Monochronic* cultures in which people see time as limited resource and usually do things one by one, and *Polychronic* cultures in which people see time as an unlimited resource and usually will do several things at the same time (Hall, 1976). At the same time, different societies have different preferred distances to define public and private space (Hall, 1990). In addition, Hall (1976) posited that cultures also differ in the way of communication. In *high-context* culture, communication relies more on implicit signals such as facial expression and body languages, and usually happens in a unified form with simple words but deep meaning (Hall, 1976). In contrast, in *Low-context* culture, messages tend to be communicated with explicit codes like language or written words (Hall, 1976).

Similarly, Rokeach (1973) argued that human values deal with nine issues: 1) evil versus good, 2) dirty versus clean, 3) dangerous versus safe, 4) decent versus indecent, 5) ugly versus beautiful, 6) abnormal versus normal, 7) praradoxical versus logical, 8) irrational versus rational, and 9) moral versus immoral. These nine values reflect the criteria people use to judge whether a thing is desirable or undesirable.

These dimensional classifications are reflective attempts to order a complex reality, but each is strongly coloured by the subjective choices of its author(s) (Hofstede, 2008). Nevertheless, they reveal that cultures vary neither randomly nor haphazardly, but in distinct, significant and predictable ways (Adler and Gundersen, 2002).

2.2 Different levels of cultures and their interrelationships

Although there are common issues confronting all human societies, human groups in different scales actually have different concerns (Hofstede, 2008). This suggests the

necessity to trace the different nature of cultures at different levels if we want to grasp the forces driving different workspace issues. In this research, national culture, regional culture, industrial culture and organisational culture are focused upon.

2.2.1 National culture

National culture has been defined as “pattern(s) of shared attitudes, beliefs, categorisations, self-definitions, norms, role definitions, and values… that can be identified” (Triandis, 1996, p408) among people in a nation. Hofstede (2008) argued that forces such as common language, shared mass media, a similar education system or market will lead to an integration tendency, within which ethnic, linguistic and religious groups will seek recognition of their own. National culture is derived from the cluster of these groups. For example, the UK comes from the Anglo cluster, Italy from the Latin cluster, Germany from the Germanic cluster and Sweden and The Netherlands from the Nordic cluster (Ronen and Shenkar, 1985). There are also some national cultures developing from multiple sources, like the Chinese culture, which was merged from many small countries at two thousand ago. Therefore, national culture also involves historical concepts as well as geographic features. It is not genetic but learned, inherited from generation to generation, and tends to be stable over time. Changes mainly come from outside through force of nature or human, but happen slowly, and rarely by adopting outside values directly unless there is an overwhelming social change such as a violent invasion (Hofstede, 2008). For example, Inglehart and Baker (2000) examined how modernisation and economic development influence national cultures and found that “while economic development is associated with shifts away from absolute norms and values toward values that are increasingly rational, tolerant, trusting, and participatory”, the cultural change is path dependent. The broad cultural heritage of a society like Roman Catholic, Confucian or Communist, leaves an imprint on values that endures despite modernisation (Inglehart and Baker, 2000).

Like culture in general, at the national level there are also common issues that all countries have to solve. The literature on national cultural differences has produced dozens of suggestions on what factors could (or should) be compared and how these should be interpreted. Inkeles and Levinson (1969), for example, identified three dimensions: 1) self-image, which can be split up into male - female and individual - group relationships; 2) power, reflecting how people deal with authority; and 3) control of conflicts and emotions. In the same vein, Trompenaars and Hampden-Turner (1998, 2004) and Trompenaars and Woolliams (2004) conceptualised seven categories of cultural variation, including universalism versus particularism, neutrality versus emotionality, individualism versus

communitarianism, specificity versus diffusion, achievement versus ascription, orientations to time and orientations to the environment.

Schwartz (2006b) also emperically analysed the data from 73 countries and derived seven cultural values in three dimensions. The dimensions are: 1) *Intellectual and Affective Autonomy versus Embeddedness*, reflecting the nature of the relation or the boundaries between the person and the group. *Intellectual and Affective autonomy* encourages individuals to pursue their own ideas and affectively positive experience for themselves respectively. But the *Embeddedness* view sees people as entities embedded in the collectivity and emphasise the importance of social relationships. 2) *Hierarchy versus Egalitarianism*, reflecting the critical issue of guaranteeing responsible behaviour that will preserve the social fabric. People in *Egalitarian* cultures are socialised to internalise a commitment to cooperate and to feel concern for everyone's welfare. But in *Hierarchy* culture, people take the hierarchical distribution of roles for granted and comply with the obligations and rules attached to their roles. 3) *Mastery versus Harmony*. *Harmony* emphasizes fitting people into the world rather than changing the world. But *Mastery* encourages people to change the natural and social environment in order to attain group or personal goals.

Among various frameworks proposed by researchers, so far the most widely accepted and tested framework is Hofstede's cultural model. In the first edition of the landmark work *Culture's Consequences,* (Hofstede, 1980a) proposed four cultural dimensions based on research data from employees in the multinational company IBM with subsidiaries in over 50 countries.. The cultural dimensions represent independent preferences for one state of affairs over another (Hofstede, 2008). The dimensions are:

- ***Power Distance*** (PDI), reflecting the social inequality between people of different rank or position. People in societies exhibiting a large degree of *Power Distance* accept a hierarchical order in which everybody has a place and which needs no further justification. In societies with low *Power Distance*, people strive to equalise the distribution of power and demand justification for inequalities of power. For example, between superiors and subordinates, the greater the *Power Distance* is, the wider the gap will be between them.

- ***Collectivism versus Individualism*** (IDV), reflecting the extent to which an individual relies on a group or takes individual initiative in make decisions, solving problems and engaging in productive activity. It is related to the relationship between individuals and the primary group. Generally, Western cultures tend to be more individualistic whereas

Asian cultures tend to be much more collective (Triandis et al., 1988). In the following sections, the dimension is labelled as *Individualism* for short.

- ***Uncertainty Avoidance*** (UAI), reflecting people's attitudes to ambiguity in a society. It relates to "the level of stress in a society when facing unknown future". Some cultures are less happy with ambiguous situations and changes.

- ***Masculinity versus Femininity*** (MAS), related to "the division of emotional roles between men and women". Masculinity reflects values which are widely considered to be more "masculine", such as assertiveness, competitiveness and results orientation, whereas 'feminine' values can be seen to be cooperative and to show greater awareness of feelings and equal opportunity. In the following sections, the dimension is labelled as *Masculinity* for short.

The second edition of Hofstede's volume published in 2001 extends the framework (Hofstede, 2008). This dimension is developed based on the discoveries of the Chinese values survey (The Chinese Culture Connection, 1987) . Noticing that western values lack validity in interpreting Chinese students' responses, Bond and his colleague developed the Chinese Value Survey (CVS) to measure the Chinese social value system. The study generated four cultural dimensions, namely CVS_{I} *integration,* CVS_{II} *Confucian work dynamism,* CVS_{III} *human-heartedness, and* CVS_{IV} *moral discipline* (The Chinese Culture Connection, 1987). Based on the intercorrelation coefficients, researchers discovered that Hofstede's dimensions PDI and IDV both correlate significantly with the CVS_{I} and CVS_{IV}, and MAS correlates with CVS_{III}. But no significant correlation between Hofstede's dimensions and CVS_{II} could be found. Realising the importance and uniqueness of Confucianism taught in Eastern cultures, Hofstede later absorbed CVS_{II} into his framework as the fifth dimension:

- ***Long-term Orientation versus Short-term Orientation*** (LTO): related to "the choice of focus for people's effort: the future or the present" (Hofstede, 2008). Short-term orientation societies prefer to maintain time-honoured traditions and remain suspicious of societal changes whereas Long-term orientation societies tend to take a more pragmatic approach and encourage thrift and current efforts to prepare for the future. In the following sections, the dimension is labelled as *Long-term Orientation* for short.

In the latest edition of the book *Culture and organisations: Software of the mind (3rd edition)*, a sixth dimension "*Indulgence versus Restraint*" was added (Hofstede et al., 2010b). "Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that

suppresses gratification of needs and regulates it by means of strict social norms". This dimension has not been included in this PhD research because it is not widely validated and examined by other researchers. Appendix I summarises some findings in Hofstede' s work (2008).

In general, comparisons of national cultures have been vigorously studied through various ways. It is generally believed that national cultures are measurable and comparable.

2.2.2 Regional culture

Regional differences are common in modern countries. For example, in the UK, one can absolutely expect cultural differences between England, Scotland and Wales. In countries with huge territories like China, the regional differences are even more significant (Vandello and Cohen, 1999; Ge, 2012).These differences might arise from historical and geographical factors but still influence today' s business and political organisations in a significant way. For example, a number of researchers have found the important influence of regional cultures on business rituals and ethics (Aoyama, 2009; Redfern and Crawford, 2010), even corporate strategies (James, 2003) in regional studies. Argued by Hofstede et al. (2010b), it is important to complement studies of national culture with further differentiation based on subculture.

Similar to national culture, regional culture is a concept based on geographical location. Lomnitz-Adler (1991) suggested that "a regional culture is the internally differentiated and segmented culture produced by human interaction within a regional political economy" (p198). It defines the common behaviour pattern and thought mode of a specific group of people living in the same area within countries, developed in order to cope with the local environment through a long-term process (Wang et al., 2011). Huo and Randall (1991) see the relationship between national culture and regional subcultures as a forest and trees inside it. If we see national culture as a forest, regional cultures are groves of trees. Thereby exploring regional differences in a nation is theoretically interesting in that it seeks to break down a generalised description of a people into more meaningful subunits (Huo and Randall, 1991).

The nature of regional cultures has led researchers to believe that dimensions measuring national culture might be applicable in the measurement of regional culture too. For example, Brons (2004) measured Dutch regional culture indirectly with four dimensions namely: 1) collectivism, 2) masculinity, 3) anti-conservatism, and 4) tolerance for inequality. These dimensions are remarkably similar to Hofstede's dimensions. In China, a number of

researchers have compared the Chinese regional culture with Hofstede' s dimensions too and they do yield meaningful interpretation (e.g. Huo and Randall, 1991; Cheung and Chow, 1999; Kwon, 2012). Hofstede himself argued that his cultural dimensions might apply to geographical regions within a country, but in this case researchers should pay attention to locally relevant items (Hofstede et al., 2010a). Ralston et al. (1996) and Rao and Li (2013) also empirically measured the regional cultural differences in China by using Schwartz Value Survey (Schwartz, 1992) and Portrait Values Questionnaire (Schwartz, 2006a) respectively.

2.2.3 Organisational culture

On a smaller scale, organisations have their own cultures too (Hofstede, 1985). Occasionally, the term of organisational culture had been denoted as "organisational climate" (Hofstede et al., 1990), or a glue to binds the organisation together (Schein, 1984). Although in the literature there still remains no consensus about the definition of organisational culture (Schneider et al., 2013), various definitions tend to fall into a general view that organisational culture consists of basic assumptions, patterns of thought, beliefs and values that are shared by members of an organisation in relation to a wider range of issues such as history and artefacts. For example, Cameron and Quinn (2006) defined culture as being implicit, indiscernible aspects of organisations including core values and consensual interpretations about how things are. Hatch (1993) argued that organisational culture is founded on a broad-based history that is realised in the material aspects of the organisation (e.g. its name, products, buildings, logos and other symbols, including its top managers), which create identity and illustrate cultural assumptions and values. Morgan (1986) and Adams and Ingersoll (1990) see culture as a critique of normative rationality consisting of rules and symbols, which are generated by the values people bring to the organisational setting, and the interactions and rituals they have there.

The above definitions define organisational culture in an interpretative perspective. However, organisation culture has been adopted for instrumental reasons as well. The focuses come from two distinct but related concerns for organisational development: problems of external adaptation and problems of internal integration (Schein, 1984). Schein argued that organisational cultures work well enough to be valid ways of perceiving, thinking and feeling problems, and thus to be taught to new members. In other words, organisational culture is a means for extending central control through socialising employees. It can help or hinder the implementation of organisational policy and thus function by influencing whether strategies are actually adopted in daily practices (Zimring and Peatross, 1997).

Flexibility and Discretion

Internal Focus and Integration

External Focus and Differentiation

Clan Culture	**Adhocracy Culture**
Characteristics: a friendly place where people share a lot of themselves, like an extended family. **Managerial values:** stress the long-term benefit of human resource development while valuing cohesion and morale. **Operation:** emphasis on teamwork, participation, and consensus. Success is defined in terms of sensitivity to customers and concern for people. **Leadership:** the leaders or head are considered to be mentors and, maybe even, parent figures. **Glue:** the organisation is held together by loyalty or tradition. Commitment is high.	**Characteristics:** a task-oriented dynamic, entrepreneurial, and creative place to work. **Managerial values:** stress flexibility and creativity and show less concern for uncertainty. Organisation focus on growth and get resource. **Operation:** organise people based on tasks temporarily and dynamically. Do not have centralised power or authority and empowerment is preferred **Leadership:** organisational leaders are considered to be innovators and risk takers. **Glue:** the organisation is held together by commitment to experimentation and innovation.
Hierarchy Culture	**Market Culture**
Characteristics: a very formalised and structured place to work, ruled by rigid procedures control. **Managerial values:** stress stability and regulations whereby tasks and functions can be integrated and coordinated, and uniformity can be maintained. **Operation:** emphasise process effectiveness. Clear lines of authority, standardisation, accountability and predictability are valued. **Leadership:** the leaders are powerful coordinators and organisers. **Glue:** the organisation is held together by formal rules and policies.	**Characteristics:** a results-oriented organisation. The major concern is getting the job done. **Managerial values:** stress getting competitiveness and productivity through clear goal setting and planning **Operation:** emphasise transactions with external parties such as suppliers, customers and contractors and are operated through economic market mechanisms. **Leadership:** the leaders are hard drivers, producers, and competitors. They are tough and demanding. **Glue:** the organisation is held together by an emphasis on winning and success.

Stability and Control

Figure 2.3 Cameron and Quinn's four typologies of organisational culture
(Source: based on Cameron and Quinn, 2006: p66)

Schein (1984) suggested that organisational culture has three layers. From deep to shallow are basic assumption, values and artefacts. Artefacts compose the constructed environment of the organisation e.g. architecture, technology, office layout, visible or audible behaviours and pubic documents. They describe how a group constructs its environment and what behaviour patterns are discernible among the members. However, to understand why a group behaves the way it does, we need to move beyond the invisible entity and look at the values that govern behaviours. Values reflect the underlying basic assumptions i.e. Kluckhohn and Strodtbeck's (1961) and cultural orientations, which are taken for granted and less debatable.

The value-centred assumption has driven various researchers to explore the dimensions of organisational culture. One of the most prevailing models is the Competing Values Framework (CVF) developed by Robert E. Quinn and his colleagues (Quinn and Rohrbaugh, 1983; Cameron and Quinn, 2006). Cameron and Quinn (2006) suggested that organisational culture can be measured with two dimensions, namely *Flexibility versus Stability* and *Internal versus External*. *Flexibility versus Stability* differentiates the emphasis on flexibility, discretion, and dynamism from the emphasis on stability, order, and control in the organisational process. *Internal versus External* differentiates organisations that emphasise an internal orientation, integration, and unity from organisations that emphasise an external orientation, differentiation, and rivalry. Together these two dimensions form four quadrants defining four types of organisational culture. Cameron and Quinn (2006) named them as *Clan* culture, *Adhocracy* culture, *Hierarchy* culture and *Market* culture (Figure 2.3).

Apart from Quinn and Rohrbaugh's theoritical framework, another popular model was presented by Deal and Kennedy (1982). By examining a variety of organisations, they qualitatively identified four distinct types of cultures combining two external factors: risk and speed of feedback from the market, which are *Tough-Guy* culture, *Work Hard/Play Hard* culture, *Bet-Your-Company* culture, and *Process* culture. Deal and Kennedy (1982) argued that *Tough-Guy* culture belongs to the world of individualists who enjoy risk and get quick feedback, in which teamwork is not valued. In contrast, in *Work Hard/Play Hard* culture employees take few risks but wish to have immediate feedback on their performance. Collaboration and in-group diversity are valued to drive everyone to keep doing good work in this culture. *Bet-Your-Company* culture prefers risks in decision-making. But because it may need to wait years before knowing whether an action is actually paid off, making right decisions is important. The culture therefore is long-term focused and believes in the need to plan, prepare and perform due diligence at all stages of decision-making. In *Process* culture, feedback is slow, and risks are less preferred. Employees focus on how to get the

process and the details right rather than measuring outcome. Technical excellence is often valued by organisations with this culture.

Quinn and Rohrbaugh's theoretical framework and Deal and Kennedy's typology provide different perspectives to examine organisational cultures. Quinn and Rohrbaugh's work develops a useful quantitative tool to measure individual organisation's culture with a number of variables while Deal and Kennedy provide an interpretive way to understande the differences between organisations based on their characteristics.

2.2.4 Industrial culture

Deal and Kennedy (1982), while looking at organisational culture, found that organisations in different industrial sectors to some extent show intra-industrial similarities and inter-industrial differences. For example, government bureaucracies in general tend to be process oriented due to their work nature, while salesmen usually work hard and play hard. They investigated several industries, which are listed in Table 2.1.

Their findings suggest the influence of industrial culture. Due to the different nature of core tasks and different dominant professional groups involved, the cultures of different industries tend to be different. In industries with a strong professional characteristic, outsiders are often struck by the similarity of organisations and professionals in the industry in spite of different national contexts. For example, lawyers and law firms, doctors and hospitals, and architects and design companies, appear to be quite similar across nations. The industrial cultures are usually closely tied to the professional service they provide.

Table 2.1 Example of the cultural types within different industries

Culture type	Industry / occupation
Tough-Guy	Entertainment, sportsman, advertising, broker, police, surgeon
Work Hard / Play Hard	Salesman, restaurant, software development
Bet-Your-Company	Mining, manufacturing, real estate development
Process	Bureaucracies, banks, insurance companies, public services

Source: based on Deal and Kennedy (1982)

Mintzberg (1983) suggested that organisations can be classified into five types based on the configuration of organisational structure, each is preferred by different industries aligning the industrial culture. He argued that organisations usually consist of five parts of personnel: 1) people who make the final decision - the *strategic apex*, 2) people producing products and doing services - the *operating core*, 3) managers connecting the strategic apex and the operating core - the *middle line*, 4) people providing technical support or idea to the design, adaptation and maintenance of the organisations - the *technostructure*, and 5) people providing administrative support - the support staff. Different organisational configurations have different coordinating mechanisms and place different importance on the five groups of personnel. The five types of organisational configuration are:

1) *The simple structure.* It has few support staff, little technostructure, loose division of labour and scarce formalised organisational behaviours. Its coordination is largely affected by direct supervision. Thus, the strategic apex is often seen as the most important part in this type of organisation. The structure is often seen in single purpose process firms (Woodward, 1965) or entrepreneurial firms that emphasise flexibility and "loathe bureaucratic procedure as impositions" (Mintzberg, 1980: p332).

2) *The machine bureaucracy.* It has sharp distinction between line and staff, highly specialised routine job tasks and very formalised procedures. There are many levels in organisational hierarchy while the span of management is narrow and decision making is centralised. Because the organisational coordination depends on standardisation of work process, the technostructure – analysts who do the standardising, becomes the key part. The structure is usually preferred by mass manufacturing or service firms such as telephone companies, organisations having special needs for safety like airlines, and organisational agencies such as a police department.

3) *The professional bureaucracy.* The structure is decentralised, and the coordinating mechanism relies on the standardisation of skills achieved through extensive professional education and training. It has minimal technostructure due to the difficulty to formalise the complex work of professionals. The complexity of jobs and the demand for highly trained specialists render the operating core become the key part of the structure. The structure is typically found in education organisations like universities, professional companies like accounting firms and lawyer firms.

4) *The divisionalised form.* It has a flat structure with a central headquarter overseeing a number of divisions, each in change of its own market with a good deal of autonomy. Because there is little need for close coordination between divisions, standardise output becomes important, and middle managers connecting the headquarter and the

operating core become the key part of the organisation. The structure is popular in large multinational or multi-regional organisations, conglomerate unions, multiversity or governments.

5) *The adhocracy*. It consists of little formalisation of behaviours, a tendency to group different professionals or specialists based on projects, and the coordination thus relies on the mutual adjustment of these professionals or specialists. As such, the support staff who are charged with the work design of operation core, is usually large to support the complex structure. The structure is fashionable amongst research and development firms in electronics, design and cutting-edge high technology industries.

Based on the literature review, methodologies directly measuring industrial cultures so far are missing despite their importance. Industrial culture is usually measured through measuring the culture of the dominant professional group in the industry. For example, Jacks and Palvia (2014) measured the IT culture through measuring the values of IT engineers. Professional culture pertains to shared values, beliefs, and norms associated with a particular occupation or type of work (Heery and Noon, 2008). It is acquired though professional education and training, featuring unique career development, specific knowledge and skills, control over certain tasks, and obtaining specific qualifications and membership in professional bodies and associations (Trice, 1993; Schein, 2010),. People in the same profession usually are trained in similar ways and thus are infused with similar values and skills (Hofstede et al., 1990)

Herkenhoff (2009) argued that professional cultures could be measured with five dimensions, which are *Power, Risk, Gender, Time* and *Team*. The five dimensions are close to Hofstede's five cultural dimensions. *Power* refers to the extent to which power differences are accepted. It is likened to the dimension of *Power Distance* in Hofstede's module. *Risk* refers to the degree to which taking risks and uncertainty are accepted and encouraged among members of the professional group. *Gender* refers to the extent to which gender-based role differentiation is experienced and promoted, and workplace environment quality is emphasised. *Time* reflects the degree to which the job is long-term focused. *Team* refers to the extent to which a job emphasises collaboration and collective wellbeing. It is likened to the dimension of *Individualism versus Collectivism* in Hofstede's model.

2.2.5 Roles of different levels of culture in organisational life

Organisational researchers generally believe that the above-mentioned four types of culture have different influence on organisations due to their different natures. But the extent an

individual is influenced more by one level of culture and less by other levels of culture depends on the situation (Hofstede et al., 1990).

In the study of IBM, Hofstede et al. (1990) found that among national cultures there are considerable differences in values, but this did not withstand similarities in practices among IBM employees in similar jobs in different countries. Among organisational cultures, they found considerable differences in practices for people who held similar values. In another two case studies, they also found that the actions of employees are often dominated by habitual responses to organisational requirements rather than individual values. Hofstede et al. (1990) hence attributed this discontinuity to the relative independence of values and practices. They suggested that organisational founders and key leaders would transfer their values into practices as the preferred way of doing things while shaping organisational cultures. Employees have to accept the rules set by the “charismatic” rulers. Thus, for employees, while their values are acquired in early youth from family, neighbourhood and schools, their practices actually are socialised at the workplace. Because of this, their values and practices are not necessarily always in sync. Values and practices could even be at odds, for example, if work requires intensive teamwork in an individualistic culture.

As a result, the subsequent socialisation at workplace is more of learning practices, e.g. symbols, norms and processes. This implies that organisational cultures are composed of different elements from those that make up national culture (Hofstede et al., 1990). Hofstede (2008) states that at the national and regional level, cultural differences reside mostly in values and less in practices; in contrast, at the organisational level cultural differences reside mostly in practices but less in values. Professional culture is halfway between them, suggesting that entering a professional field means the acquisition of both values and practices (Hofstede et al., 1990). With the transcending of different levels of cultures, the relative importance of values and practices changes. While an individual’s values are dominated by his national or regional culture it is likely that his/her behaviours are primarily influenced by professional and organisational practices (Hofstede et al., 1990).

Following the argument of Hofstede et al. (1990), Karahanna et al. (2005) further discussed the influence of different levels of cultures on organisations based on Rokeach’s (1973) distinction of terminal values and instrumental values in the value system. Terminal values reflect human objectives and indicate what the world should be like. They can be further divided into personal values and social values. Personal values are self-centred (e.g. peace of mind, true friendship, self-respect, inner harmony) whereas social values are society centred and interpersonal in nature (e.g. world peace, equality, notional security and freedom). Instrumental values reflect desirable ways of doing things. They consist of moral

values and competence values. Moral values (e.g. honesty, forgiveness, salvation and helpfulness) are interpersonal in nature and arouse feelings of guilt when violated whereas competence values are personal in nature (e.g. efficiency and creativity) and their violation leads to feels of shame about personal inadequacy. Karahanna et al. (2005) advocated that different levels of cultures involve different types of values. National culture and regional culture involve personal, social and moral values while organisational culture primarily involves competence values. Industrial culture, on the other hand, is pertinent to moral and competence values (Table 2.2).

Table 2.2 Values involved at different levels of culture

	Practices	Terminal Values		Instrumental values	
		Personal	Social	Moral	Competence
National	×	×	×	×	
Regional[2]	×	×	×	×	
Industrial	×			×	×
Organisational	×				×

(Source: Adapted from Karahanna et al., 2005)

According to Karahanna et al. (2005), an individual's behaviours can be seen as a function of various levels of culture to which he/she belongs. Equation 1, initially posited by Karahanna et al. (2005), illustrates the function of different cultures on behaviour. V_c represents the value set of particular level of culture, and W_c is the weight of each value set in regard to the nature of a behaviours. If the circumstance and the nature of behaviours change, the relative importance of each culture changes too.

$$Individual\ behaviours = \sum W_{C_i} V_{c_i} \qquad \text{Equation 1}$$

Karahanna et al. (2005) also argued that behaviours involving social and personal values are primarily influenced by national and regional cultures while behaviours involving a task component are primarily influenced by the professional and organisational culture. Following the argument, we might further posit that workspace preferences and

[2] Regional culture is not in the original table of Karahanna et al. (2005). For my research purpose, I add it into the table and believe that as a geographic concept, it has a similar nature with national culture.

accommodative behaviours involving social and personal concerns are mainly influenced by national and regional cultures while those involving competence requirements are mainly influenced by industrial and organisational culture. V_{c_i}

However, in reality we never have the luxury to study cultural phenomena inside organisations in such a simplified way. Despite the different natures, national/regional culture, industrial culture and organisations in fact do not perform independently (Karahanna et al., 2005). The interaction of these cultures has been thoroughly explored in the literature (e.g. Deal & Kennedy, 1982; Laurent, 1986; Hofstede, 1990; Ulijn et al., 2001; Karahanna et al., 2005). Hofstede et al. (1990) argued that people get their basic value assumption from family, neighbourhood or school in their early life, but new values can be acquired though their lifetime and integrated with the bulk of values in their later experience, for example, being occupationally socialised at vocational school or universities. Once a value is learned, it become a part of the integrated value system where each value has a relative priority and is hard to change. In this sense, an individual's values can be seen as an amalgamate of all various levels of cultures which he/she learnt (Karahanna et al., 2005). The learning process and educational attainments have been found to have significant correlation with the difference between sub-cultures in the society (Bernstein, 2003).

Through influencing individuals' values, higher levels of cultures will influence the lower levels of culture. Even industrial cultures, which are assumed to be universal among industrial members, may still be influenced by national or regional culture. Ulijn et al. (2001), for example, discovered engineers in Germany and the Netherlands use different cultural–bound ways to reach innovation. Engineers in the Netherlands, who have a more feminine culture, are more market-oriented than their German counterparts whose culture is more masculine.

National/regional culture and industrial cultures may influence organisational cultures too. Based on the research data of IBM company in 53 countries and regions Hofstede (1985) discovered that regional culture plays an important role in shaping entrepreneurship, the value system of an organisation often shows an embedded national or regional component according to the region of dominant elites or leaders. Schein (1983) also assumed that organisation founders or leaders create, shape, instil and maintain organisational culture while their value orientations and belief systems are shaped by national culture. But on the other hand, founders of different organisations may have different cultural experience and thus have different personal traits and values. This has greatly shaped the variability of organisational cultures.

Because organisational founders have such a power to influence organisational culture, later joiners to an extent have to adapt him/herself to the organisation by going through processes of selection and socialisation, and if the fit between their values and the organisation's values is too poor and they can't be socialised, they will leave or be forced to leave the organisation (Hofstede, 1985).

However, the selection process will in return select organisations. Economic geographers believe there is a “select in” mechanism in regional economy. It is believed that the assumptions and values of the local populace would result in unique business ideologies that are meaningful and compatible with the local environment (Laurent, 1986; Littrell et al., 2012). These ideologies will influence organisations through workforce hiring and market competition. In order to survive and prosper, organisations have to adapt structures and practices to the environment in which they are embedded (Wang et al., 2011). As a result, surviving organisations usually have hybrid cultures and forms that are to some extent isomorphic with the local culture (Nelson and Gopalan, 2003). Based on empirical data from 208 organisations within 27 societies and 3 industries, Brodbeck et al. (2004) found that societal differences accounted for 31% to 71% of the variance of organisational practices.

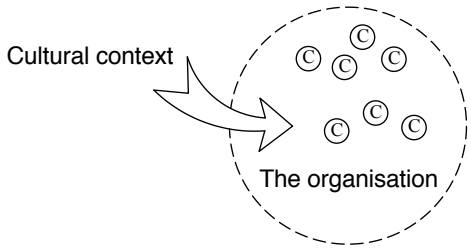


Figure 2.4 Cultural context as input of organisational culture
(Source: Smircich, 1983:p343)

Hofstede (1985, 2008), in particular, elaborated how prevalent socio-cultural values affect organisational configurations and consequent organisational culture. He argued that two central problems of organisational configurations are the distribution of power and the control of uncertainty. Due to the difference in Power Distance (PDI) and Uncertainty Avoidance (UAI), different societies have different assumption about them and different implicit models of organisational structure paralleling Mintzberg’s (1983) classification of organisational configuration (Figure 2.5). According to Hofstede (1985, 2008):

1) Large PDI plus strong UAI leads to people viewing an organisation as a “pyramid of

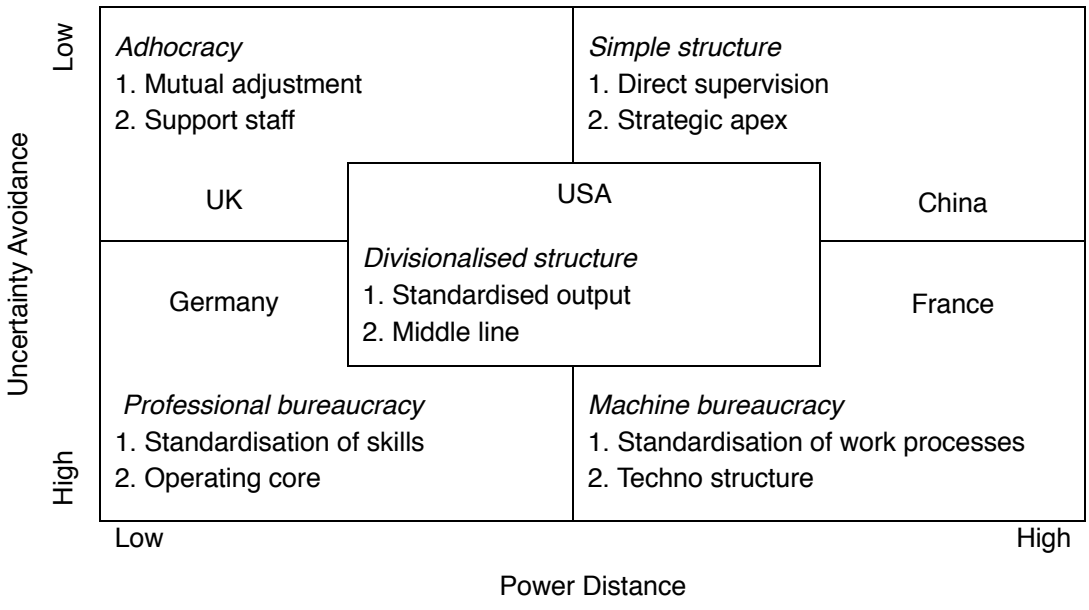
people", that is a *machine bureaucracy* with strong hierarchy and rigidly prescribed interpersonal relationships and job tasks. This type of organisation is typically found in countries such as France and other Latin and Mediterranean countries.

2) Small PDI plus strong UAI leads to *professional bureaucracy* which viewing an organisation as a "well-oiled machine" operated by skilful professionals. It is a culture of specialists, typically found in countries like Germany and other Central-European countries.

3) Small PDI plus weak UAI leads to *adhocracy* which viewing an organisation as a "village market" that is flexible and organic. It is popular in the UK and other Anglo and Nordic countries.

4) Large PDI plus weak UAI leads to *simple structure* which viewing an organisation as a "family". It is typically found in Asian and African countries such as India and China.

5) Middle PDI plus middle UAI leads to *divisionalised structure.* It has been developed and yields great popularity in the US.



1= preferred coordination mechanism;

2= Key part of organisation

Figure 2.5 Mintzberg's organisational configurations projected on the PDI × UAI matrix (Source: adapted from Hofstede, 2008: p377)

Analogously, industrial culture is assumed to influence organisational culture in similar ways. However, according to Brodbeck et al. (2004), the industrial effects are much weaker than social effects. In their study, industrial culture showed significant influence on gender egalitarianism only.

In general, different levels of culture have different natures and play different roles in organisational life while interrelating with each other. Figure 2.6 shows their interrelation using overlapping and nested ellipses. Each level of culture consists of some part of other levels.

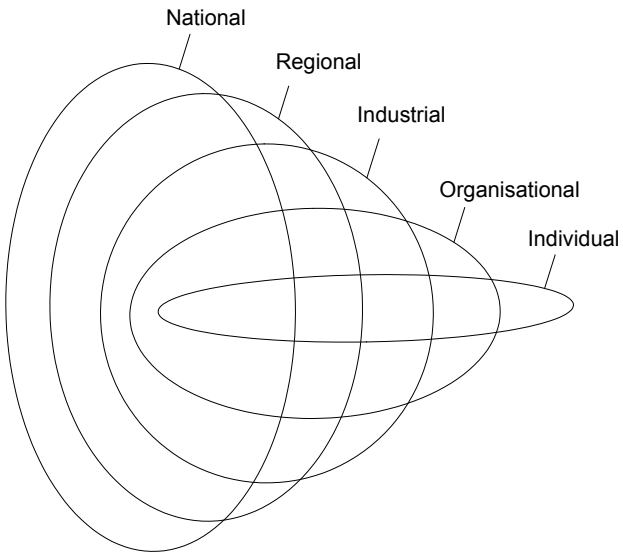


Figure 2.6 Interrelated levels of culture
(Source: adapted form Karahanna et al., 2005: p6)

2.3 Culture and workspace: research in the literature

2.3.1 Culture-related workspace study

Cultural issues resonate in workspace design. There are mainly three research steams in the literature.

Various writers tend to refer workspace as material artefacts of organisational culture (e.g. Hofstede, 1991; Schein, 1984). Deal and Kennedy (1982) stated that, “a company’s investment in bricks and mortar inevitably says something about its culture” (Cited by Van

der Voordt, 2003, p2). Figure 2.7, borrowed from Schein (1984), illustrates how artefacts relate to organisational culture. It suggests that while artefacts are influenced by organisational values and basic assumptions, in return they will influence organisational values. Schein's schema implicitly formalises two different perspectives that appear in the literature to study workspace as cultural artefacts.

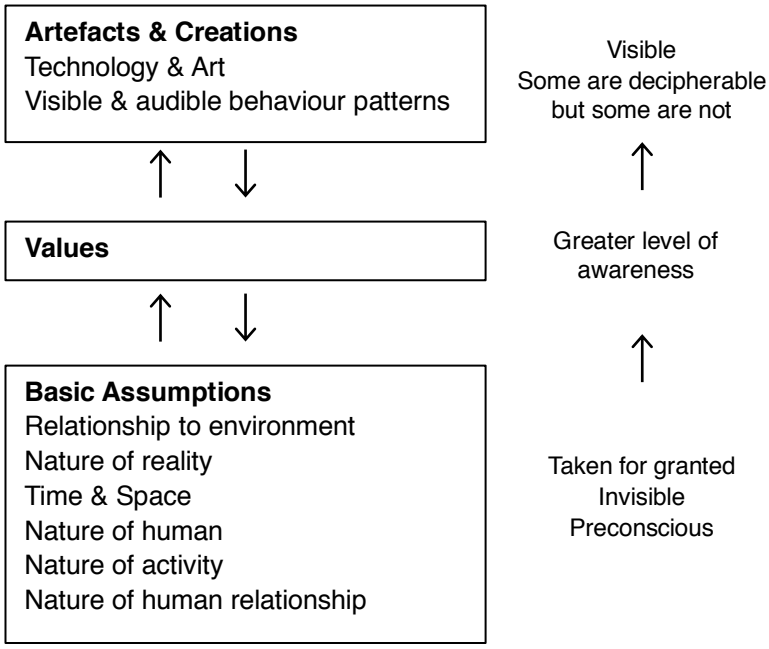


Figure 2.7 Artefacts in the system of organisational culture
(Source: Schein, 1984: p4)

The first sees workspace as the symbol of organisational culture. It is believed that "organisation is a function of the problem of order and orderliness" (Meadow, 1967: p78) and the orderliness is manifested in several "thematic" areas including space (Smircich, 1983). Workspace physically and "symbolically represents organisational culture as a visible, physical manifestation and indicator of organisational life" (Kupritz and Hillsman, 2011: p156). People create space purposely for activities and relationships (Rapoport, 1980). Thus, in this approach, researchers seek to understand how physical space can mirror, mimic or reflect the structure of the organisation, i.e. the distribution of power and the relationships between people, groups and the organisation (e.g. Zimring and Peatross, 1997). It is hypothesised that the general principle of spatial organisation is isomorphic with that of the social organisation. For example, the layout of buildings usually will reflect relationships between categories of people in a setting (Hillier and Hanson, 1984).

The second focuses on how workspaces as “symbolic sources” or “culture generators” (Berg and Kreiner, 1990) regulate people’s actions and interactions within organisations and thus affect the organisational culture. Researchers generally believe that the study of symbolic properties is important not only for its own sake, but for the fact that interpretative schemas typically lead to action along those lines (Yanow, 2012). For instance, Gans (1968) stated that design of work and living environment may support or constrian behaviour and acts as a catalyst for releasing latent behaviours. Zimring and Peatross (1997: p207) also noted that symbolic identification is “generated as culturally inherent predispositions for the more instrumental purpose” and thus “provides preparatory groundwork for the nitty-gritty of daily work life”. More specifically, Dale and Burrell (2008) conceptualise space as a process communicating power and politics at work. It is suggested that the symbolic cues of workspace in same way portend the pattern of control and communication within the workplace (Zimring and Peatross, 1997).

A telling example is Hofbauer’s (2000) analysis of how open-plan office, cellular office and landscape office “support and even impose different types of labour control” (p167) and subsequently reproduce orders at the workplace. It is suggested that open-plan designs will create order through “excellent supervision” and “panoptical gaze” which obstruct all non-directed diversity of movenment and informal communication and relationships. In contrast, cellular offices feature spatial distinction in the game of social ranking. They allow space holders to enjoy the right to personalise their workspace and have a sense of territory while reforcing the bureaucratic control.. In office landscape, on the other hand, the basic unit of organisations are made up by groups rather than individuals. This has resulted in an emphasis on preer review and self-monitorng. Hofbauer (2000: p166) hence argued that the interplay between space and organisational culture “operates in more than a metaphorical sense”; workspace is “a control device in its own right” and “particular configurations of these devices (office layout, size, furnishing, lighting, equipment, colour and noise) of design and style symbolise particular modes of organisation and concepts of control”.

Overall, the research agendas arising from these two views focus on how workspace features as internal variables “mold and shape internal culture in particular ways and how to change culture, consistent with managerial purpose” (Smircich, 1983: p346). However, in the field of orgnisational study, the manageability of organisational culture is questioned. Smircich (1983) critices that much of the literature appears to lose sight of the greater likelihood that there are multiple subcultures competing to define the nature of situations within organisational boundaries. Yanow (2012) stated that different stakeholder groups

may interpret artifacts differently. These groups may be categorised along industrial or professional lines, or geographic or ethnic lines. Each may develop a community of shared meaing despite the disparate practices of members (Yanow, 2012). Thus, simply to see workspace as something shaped by the “ideology cultivated by management for the purpose of control and legitimation of activities” (Smircich, 1983: p346) is problematic.

There is also a third school of researchers seeing workspace as the artefact of a broader cultural context outside organisations, such as national culture or regional culture (e.g. Riratanaphong and Van der Voordt, 2011; Rothe et al., 2011; O’Neill, 2012; Plijter et al., 2014). They see cultural values as an explanatory variable causing the difference of workspace design between cultures. It is believed that cultural values may affect people’s preferred qualities of workspace and the way they encode meanings to space, thus people from different cultures may have very different spatial linguistic patterns to communicate status and rules at the workplace and interpret the same spatial artefact with different meanings. Researchers in this approach focus on the connections between workspace characteristics or preferences and cultural values and seek to understand how workspace changes along with the changes of cultural values. The literature can be segmented into two categories.

The first focuses on workspace users’ “mental program”, investigating the similarities and differences in preferences of space users in different regions and countries. An example is the case studies of Riratanaphong and Van der Voordt (2011) in the Netherlands and Thailand, which compared employees’ cultural values and their satisfaction ratings and importance ratings of different workspace elements at the same time. The findings show that the Thai employees (sample size n=85) had a lower satisfaction rate than Dutch employees in most aspects of the work environment. But the Thai employees put much more emphasis on adjacency and location of spaces, subdivision of the whole building, and sharing ideas, whereas Dutch employees focused more on functionality and comfort of workspaces and opportunities for concentration and communication. They concluded that these differences might be caused by the preference for a less hierarchical organisation and the quite masculine culture of Thai employees.

Likewise, Rothe et al. (2011) examined that similarities and differences in workspace priorities in Finland (sample size n=1109) and the Netherlands (sample size n=3192). They found that functionality and comfort of the workspace, opportunities to concentrate, and accessibility of the building were rated as the top three most important factors in both countries. But Finnish respondents tended to give more importance to privacy than their Dutch counterparts. They explained that the more masculine culture in Finland might

account for this difference.

The second category focuses on differences in physical space, aiming to investigate the cultural influences on office users' preferences indirectly through comparing the spatial artefacts between cultures. For example,, Van Meel (2000) compared the prevailing office layouts between the UK, Germany, Italy, Sweden and the Netherlands. He found that cultural characteristics such as hierarchy, individualism and the ways of interaction to some extent can explain the differences between these nations in addition to market conditions, legislation, labour relationships and urban setting. For example, privacy is highly emphasised in Germany and this has led to the popularity of cellular offices in the country. In the Northern European countries where the cultures are relatively egalitarian, organisations tend to allocate rooms with outdoor views and natural light to employees equally.

Steelcase (2012) also qualitatively investigated the influence of national culture on workspace design in 11 countries[3]. The findings show that different countries use space from different socio-cultural views. Chinese employees, for example, appeared more tolerant of dense workstation planning, but have strong segregation between departments due to their collectivist culture.

In another recent study, Plijter et al. (2014) compared the office designs of two multinational companies in the UK, Germany and the Netherlands. They found that German offices show more hierarchy-based differences in individuals' workspace than their counterparts in the Netherlands. This is presumably influenced by the more masculine culture in Germany. Additionally, the British, being more uncertainty acceptant, are more open to innovative design.

2.3.2 Knowledge gaps

These examples share a conception that cultural values affect the preferences and consequent appearance of workspace. But overall, the literature in this domain is not extensive. Two reasons might account for the lack of study. Firstly, the functionalist tradition of workspace design passed down from Taylorist principle emphasises control and work principles while disdaining culture and tradition (Van Meel, 2000). As a result national or regional differences are considered as of relatively lower criticality (Van Wijngaarden, 2011).

[3] China, India, Great Britain, Germany, Spain, Netherlands, France, Morocco, Italy, Russia, and the United States

Secondly, the “disciplinary parochialism” (Hofbauer, 2000) also limits the horizon of researchers and practitioners. Experts working in a field may have difficulty thinking outside the framework of a single discipline. For example, architects often tantamount culture to using traditional or local forms and materials in design works so as to recall a nostalgic “regional spirit” (e.g. Zhao, 2001; Chen, 2011) . Hall (1976: p98) lamented that, “sophisticated architects” only pay lip services to culture, and “people’s needs, culturally as well as individually… are not seen as real”. On the other hand, people dealing with cultural issues hardly have any interest in architecture and spatial design (Hofbauer, 2000). In general, the full complexity of cultural issues in workspace design and management has not yet been recognised.

Chapter 1 has proposed that a successful workplace relies on the mutual accommodation between employees and their organisation under the conditioning of both pre-organisational and intra-organisational context. Organisations, while expecting to enculturate employees and regulate employees’ behaviours through workspace design, are also expected to fulfil the needs and preferences of employees shaped by their cultural backgrounds. Employees, in turn, while wishing their workspaces to accommodate their living and working habits, would also adapt themselves to create *person-organisation fit* at workplace according to the organisational environment.

However, previous researchers have hardly considered workspace as the result of external and internal influences at the same time and have viewed workspace design from a static perspective by neglecting the dynamic interactions between people, space and cultures in organisations. As a result, the theoretical development about cultural influence on three main workspace accommodation components proposed in Chapter 1 is poor and empirical study on them is lacking.

The following section will further trace the influence of different levels of culture on the three main components in relation to culture proposed in Chapter 1 by looking at literatures from other related research field including organisational anthropology and psychology.

2.4 Cultural influence on initial workspace preference

2.4.1 Defining preference

Le Corbusier remarked that, “the house is a machine for living in”. Analogously a workspace is a machine for working in (Oseland, 2009). To make the machine functional, it is necessary to understand what kind of problems the machine is going to solve to fulfil the needs of its

users. Needs for workspace are often recognised as those essentially relating to work processes and activities. They are recognised as “hygiene factors” (Herzberg et al., 1959) which can lead to dissatisfactions if poorly accommodated. Yet with changed economic patterns, the nature of workspace has changed. Today the capacity of generalising and dealing with information creatively has become a core competence for organisations. In response to this change, conceptualisation of workspace has shifted from the notion of "a backdrop” to the concept of “an active support” (Newsham, 1997). Not only the basic needs of employees have to be satisfied, but also certain levels of arousal, for example, excitement, interest or expectation have to be met to motivate staff (Oseland, 2009). Some researchers found that if people are stimulated properly, they are more likely to perform better (Yerkes and Dodson, 1908). As a result, fulfilling employees to a higher level has become an important concern of workplace design and management today. Organisations need to provide more than simply healthy air quality, comfortable temperature or ergonomic desks and chairs to employees at the workplace. Amenities such as a café bar, a library or even fitness facilities have become expected parts of today’s office.

Having reflected on these ideas and changes, Rothe and Nenonen (2011) suggested that it is necessary to distinguish preferences from needs for their different natures. They argued that *needs* are things essentially needed to perform tasks well, but *preferences* are things end-users would like to have if they had the choice. For example, having food is a need, but whether having fish or beef reflects preference. According to the distinction, needs and preferences are related to different levels of fulfilment. Meeting preferences might provide a higher level of satisfaction.

Because preferences are less task-based, they are more likely to be affected by “human factors” such as personality (Oseland, 2009), age, gender, nationality (Rothe and Nenonen, 2011) or occupation (Langston et al., 2008). Different individuals might have different “pain points” and “need different magnitudes of stimulation for optimal performance” (Oseland, 2009). Setting out from this point of view, some researchers have tried to investigate the influence of cultures on workspace preferences in different ways. One school of them see preference as “priorities in the right to demand and receive satisfaction of an obligation” and has tried to compare the cognitive priorities of different workspace elements between cultures or organisations (e.g. Van der Voordt, 2003; Riratanaphong and Van der Voordt, 2011; Rothe et al, 2011). They believe that different cultures prioritise different aspects of the workplace and thus resource should be allocated accordingly in order to yield employee satisfaction. Other researchers tend to define preferences as “things that are preferred” and seek to identify what employees like or dislike in the workspace. For example, many post-

occupancy evaluation studies use extensive questionnaires to identify what users are satisfied with as desirable quality and what they are unsatisfied with as undesirable quality (Walden, 2005; Windsor, 2005; Vischer, 2008). The two approaches in fact are complementary, reflecting the pair of concepts -- "*desired*" and "*desirable*" which are usually addressed in the study of cultural values (Hofstede, 2008). *Desired* reflects the intensity of needs and *desirable* reflects the direction of implementations like good or bad.

But the complexity is, the distinction between needs and preferences may change in different circumstances. People in different nations, occupations and organisations might have different prioritised aspect of workspace qualities, and thus an optional preference in one culture might become a need in other cultures. For example, status symbols in some culture are emphasised while in some others are "good to have" but not necessarily needed. To avoid missing critical workspace elements that caused by cultural biases, in this research, it is suggested that the two concepts of needs and preferences can be merged together as *preferences.* Further, it is believed that it is important to look at both "*desired*" and "*desirable*" aspects of workspaces to capture the full complexity of cultural influences. Therefore, in this research, *preferences* are defined as *workspace qualities contributing to people's satisfaction under the influence of particular cultural configuration.* They are things people consider as important and desirable at the workplace but not necessary.

2.4.2 Workspace preference

American psychologist Abraham Maslow (1970) suggested that human needs do not come randomly, rather, they form a hierarchy. From bottom to the top are physiological need, safety, social needs, esteem and self-actualisation respectively (Figure 2.10). Higher-order needs only become activated and thus motivate behaviour after lower-order needs have been fulfilled. In the field of workspace research, a similar hierarchy of needs (Figure 2.8) has been proposed by Vischer (2008). She reviewed issues often discussed in the literature concerning the fulfilment of workspace needs at different levels and suggested that user needs at workspace can be put into three categories:

Physical comfort, referring to basic human needs such as safety, hygiene and accessibility, which must be assured, without which the environment is uninhabitable. It is composed of various physiological workspace factors including indoor environment quality (IEQ) (i.e. noise, lighting, air quality, thermal comfort), furniture, layout, and shared amenities. A great number of researchers have examined how these factors affect the user's satisfaction and wellbeing at workplace. Based on a literature review, Vischer (2008) summarised that previous studies tended to suggest the influence of lighting, ventilation, access to natural

light, furniture ergonomics, and acoustic environment on employee satisfaction are most significant.

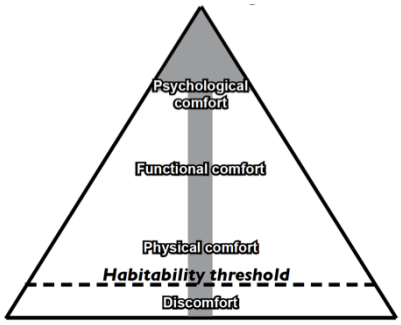


Figure 2.8 Hierarchy of workspace needs
(Source: Vischer, 2008: p101)

Functional comfort, referring to the degree to which the physical environment supports users' tasks. It links the physiological aspects of workspace to job performance. Vischer (2008) advocated, "the difference between a supportive and an unsupportive workspace is the degree to which occupants can conserve their attention and energy for their tasks, as opposed to expending it to cope with adverse environmental conditions" (p100). Undesirable lighting, ventilation and noise can generate stress and further negatively effect on productivity (Evans and Cohen, 1987) . But users' needs for functional comfort vary with the requirements of the task. A number of research works have tried to get an insight about how workspace features support or hamper various types of work activities, such as creativity (Martens, 2011), communication and supervision (Kupritz and Hillsman, 2011), collaboration (Hua et al., 2011), flexible working (Gibson, 2003), etc. O'Neill (2010) argued that workspace need to accommodate intra-organisational activities at the individual, group and organisations level. Each level has different work modes.

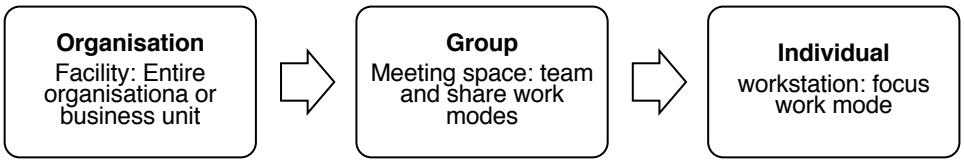


Figure 2.9 Work mode and workspace concerns at different levels
(Source: adapted from O'Neill, 2010: p121)

At the individual level, the major issue is to support concentration and reduce interruptions at individuals' primary workstation (O'Neill, 2010). Supportive features at the individual level might include flexibility and adjustability of furniture, control over indoor environment quality, amount of space and storage, displays, etc.

At the group level, sharing and team are two basic work modes (O'Neill and Wymer, 2009). Sharing can occur at individual or group spaces as a way of exchanging ideas and transferring knowledge, for example, joint viewing of a single computer screen, reviewing a document together, or informal discussion. Team relates to work occurring in formal and informal meeting spaces. Supportive workspace features at the group level include providing a variety of types, sizes and locations of meeting spaces, and furnishings, computing and communication technologies that provide flexibility within meeting spaces (O'Neill, 2010). Factors such as group boundary (Gladstein, 1994), proximity (e.g. distance between workstations, distance from workstation to meeting space or shared service area such as kitchen/coffee area), and the spatial ratio of shared space and amenities may also influence group efficiency (Allen, 2007; Hua et al., 2011)

At the organisational level, activities focus on international integration and reaction to the external environment. O'Neill (2010) suggested different organisation control patterns may affect the preferences for remote working, hot desking and architectural design features that support organisational expansion and integration. Besides, proximity to customers, businesses partners or service vendors is also considered as influencing organisational performance and employee satisfaction (Lubieniecki and Desrocher, 2003).

Psychological comfort is the socio-psychological requirements for workspace. It links psychosocial behaviours to spatial features in regard to territoriality and environmental control (Vischer, 2008). The concept of territory at work implies double meanings at workplace: physical territory and social territory. The former is related to physical boundaries and expressed in terms of personalisation and appropriation of space, through which users declare ownership (Altman, 1975). The latter is related the concepts of privacy and social status, which define one's social territory at workplace. Environmental control is related to the empowerment in space design and operation (Vischer, 2005). Some researchers found that perception of control over temperature, lighting, ventilation may contribute to occupier satisfaction (Leaman, 1995; Leaman and Bordass, 1999), and user engagement in design process allow occupiers to have a stronger sense of belonging (Veitch and Newsham, 2000). Adding to this, Gagliardi (1990), Vilnai-Yavetz and Rafaeli (2012) pointed out that aesthetics is an essential dimension of spatial experience that can give rise to feelings of attraction and repulsion, pleasure and disgust, joy and suffering (Gagliardi, 1990).

2.4.3 Cultural influence on workspace preference

Anthropologists believe that culture provides a frame of references which suggests the importance order of needs or work-life qualities (O'Reilly and Robert, 1973). Because of this, Maslow's hierarchy of needs has been widely questioned (e.g. by Hofstede, 1980b; Hunt, 1982; Trompenaars and Hampden-Turner, 1998; Ronen, 2001). A great number of studies in different cultures show that only Americans ranked their needs in the exact order of Maslow's hierarchy (e.g. Haire et al., 1966; Reitz, 1975; Buera and Glueck, 1979; Jaggi, 1979). It has been found that the hierarchy of human needs varies across culture. For instance, Nevis (1983) argued that in Chinese culture, basic life "needs and security needs go focal after belonging needs" and people are expected to "make equivocating effort to achieve group loyalty and national unity" (p261). The collectivist culture has resulted in a social norm that self-actualisation exists "in terms of how well one's functioning meets social development needs or meets a criterion of excellence as a member of society" (Nevis, 1983: p261), which is in contrast to the "narcissistic" self-actualisation of American culture. Yet, some people may ask, would the Chinese really go hungry rather than comprising sense of belonging? Just look at the Japanese kamikaze pilots in World War II. They may reflect this as an aspect of collectivist culture in the East Asia.

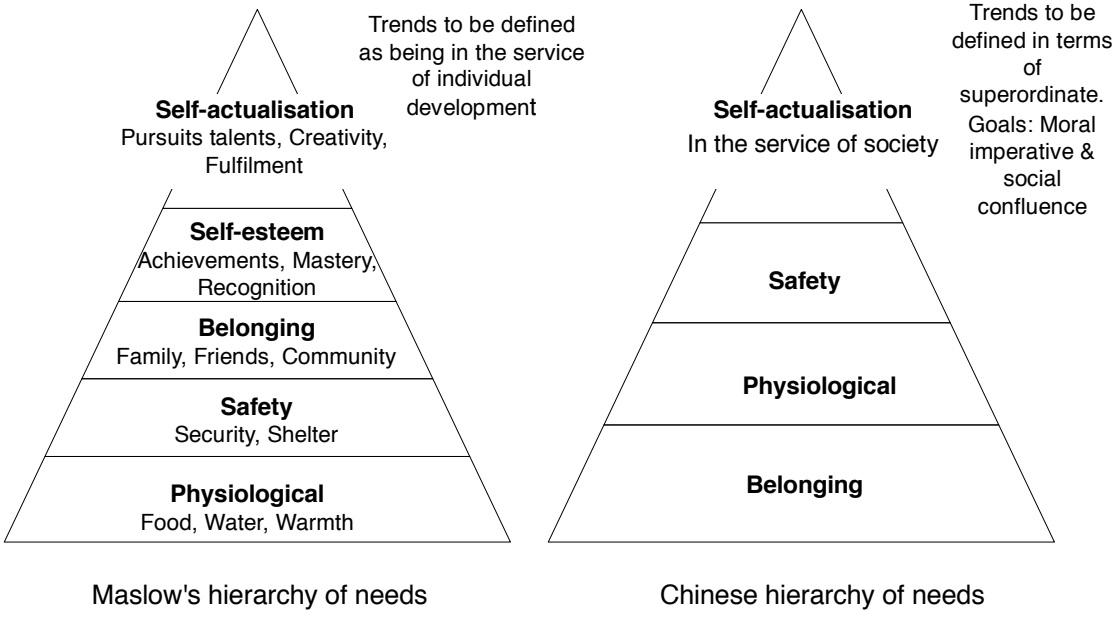


Figure 2.10 Comparison of Maslow's hierarchy of needs and Chinese hierarchy of needs (Source: adapted from Nevis, 1983: p255-256)

Table 2.3 Connection between national culture and workspace preference

Cultural dimensions & workspace characteristics	Literature	Cultures
Large and Middle Power Distance		
Executive offices are seen as important symbols of respect and order	Steelcase (2012)	China, Russia, India, Morocco
Differentiate workspace type, location, furniture or service based on hierarchy	Zimring and Peatross (1997); Varner and Beamer (2005); Adler and Gundersen (2002)	U.S., European countries
Managers expect to be located centrally or immediately accessible to subordinates to influence daily work	Van Meel (2000); Steelcase (2012); Varner and Beamer (2005); Zimring and Peatross (1997)	France, China, Italy, India, Spain, Russia, Morocco, Japan
Small Power Distance		
Have less status symbol at workspace and allocate view and space equally	Van der Voordt et al. (2003); Van Meel (2000);	The Netherlands, Sweden
Inverted layout with rooms locating in the dark inner area for managers	Van Meel (2000)	UK
Strong Uncertainty Avoidance		
Prefer conservative workspace design	Plijter et al. (2014)	Germany
Prefer clear and explicit space structure	Steelcase (2012)	France, Italy, Spain, Germany
Resistance to non-territorial office	Brunia and Hartjes-Gosselink (2009)	The Netherlands
Week Uncertainty Avoidance		
Plan spare space to cope with the expected increasing demand for space	Riratanaphong and Van der Voordt (2011)	Thailand
More open to innovative design	Plijter et al. (2014); Riratanaphong (2014)	UK, the Netherlands
More open to flexible workplace	Steelcase (2009)	UK, U.S.
Femininity		
Emphasise the comfortability of workspace, e.g. spaciousness, attractiveness and natural lighting are expected.	Hofstede (2008) Steelcase (2012)	Northern EU, Germany
Masculinity		
Prefer to express status through spatial differentiation	Rothe et al. (2011); Plijter et al. (2014)	Finland, UK, Germany

Table 2.3 (Continued)

Individualism		
Emphasise privacy and personal space	Zimring and Peatross (1997); Van Meel (2000); Varner and Beamer (2005);	U.S. Germany, the Netherlands, Sweden, Thailand
Prefer large proximal distance and have less tolerance for dense work environment	Steelcase (2012); Gudykunst and Matsumoto (1996)	The Netherlands, U.S., UK, Germany
Collectivism		
Prefer open-plan layout, and managers site in the same area with employees to emphasise "groupness"	Yoshino and Lifson (1986); Zimring and Peatross (1997); Adler and Gundersen (2002); Varner and Beamer (2005);	Japan
Use group tables or classroom-like desk arrangement with a manager sitting in the front or back	Varner and Beamer (2005)	Japan
Private offices have glazed wall or window facing the common working area to avoid the sense of being isolated.	Zimring and Peatross (1997); Varner and Beamer (2005)	Japan
Have large social area	Van Meel (2000)	Sweden[4]
Strong segregation between departments and few interdepartmental interaction space	Steelcase (2012)	China, Morocco, Russia

Hofstede (2008) argued that Maslow's hierarchy of needs in fact reflects the combination of high *Individualism* (IDV), low *Uncertainty Avoidance* (UAI) and strong *Masculinity* (MAS). But it is clear that not all cultures hold the same configuration of cultural values. Hofstede (2008) further argued that the universality of Herzberg's (1968) two-factor motivation theory is also doubious. He contended that while the theory focuses on job enrichment and emphasises restructuring individual jobs to increase productivity, there are other societies outside the U.S. have focued on restructuring individual into work group to promote prodictivity. For example, a group of student in Taiwan found that good quality of supervision

[4] Van Meel (2000: p106) suggested that Swedish culture has a tendency of "socially oriented individualism". While Swedish are highly individualistic, the individualism is counterbalanced by a strong sense of belonging.

and good relationships with co-workers, which are the hygiene factors in Herzberg's original theory, significantly contribute to employees' job satisfaction (Lee et al., 2006).

In general, there may be universal human needs, but "each culture will define its own psychological or phenomenological importance of a given level and the distance between needs levels" aligning its basic assumptions and values (Nevis, 1983). This is supposed to result in the cultural differences in the definitions of quality of life (Hofstede, 1984) as well as quality of workspace.

Setting out from this point of view, a number of researchers have explored the frontier of the subject by linking workspace factors to cultural values. Researchers generally adopt the approach of "workspace in culture" and see national or regional culture as independents variables conditioning workspace preferences. Table 2.3 lists contemporary findings in the literature. Remarkably, nearly all the research works have borrowed Hofstede' cultural model to measure national/regional cultures.

However, the findings are fragmentary, while providing valuable insights about how cultural values potentially influence workspace preferences. The fully complexity of cultural influence on workspace remains unclear. Therefore, it is worth reviewing how cultures influence people's criteria of work life from the perspective of organisational science so as to inform workspace research. In the field of organisational sciences, national or regional variability of quality of work life has been considered as an issue of work motivation (Hofstede, 1984) and linked to Hofstede's cultural dimensions.

***Power Distance*（PDI）**

Power Distance at workplace is related to the extent to which inequality is accepted. Hofstede (1984) described the different ways of defining quality of life in strong, medium and weak *Power Distance* societies. In societies with strong PDI, subordinates have strong dependence needs, thus empowerment as a form of management intervention is less compatible (Fock et al., 2013; Robert et al., 2000). Everybody expects superiors to enjoy privileges and status symbols are widely used to help the recognition of hierarchies (Hofstede, 1984). In societies with medium PDI, leaders are expected to have outstanding characteristics. Moderate status differences and privilege for leaders are socially acceptable (Hofstede, 1984). But in societies with small PDI, subjecting oneself to powerful people and inequality is undesirable. As a result, people often to go through considerable rituals of democratisation to satisfy the needs for consultation while it may not really contribute to actual decisions. Ideal leaders are expected to loyally execute the will of their groups and

status differentiation at the workplace is suspect (Hofstede, 1984). Following the argument, the different preferences for status symbols, environmental control and employees' engagement at workspace design in cultures with different *Power Distance* could be assumed.

***Uncertainty Avoidance* (UAI) × *Masculinity versus Femininity* (MAS)**

While the above two dimensions explain the motivation embedded in social relationship, Hofstede (2008) argued that the combination of *Uncertainty Avoidance* and *Masculinity versus Femininity* is the best predictor of motivation at the individual level. *Uncertainty Avoidance* represents the opposition of being motivated by hope of success or by fear of failure. *Masculinity versus Femininity* reflects the paradox between needs for career achievement and needs for quality of life and relationships. Together, they form a four-quadrant typology of motivations (Figure 2.11).

Strong Uncertance Avoidance

• Motivation is based on relationship and security. • At the workplace, People give greater importance to mutual solidarity than individual wealth, and emotional engagement and collaboration are valued.	• Motivation is based on individual security. • At the workplace, people work hard for wealth but hold a conservative attitude for innovation.
• Motivation is based on accomplishment (e.g. contribution to the society) and relationship. • At the workplace, people show more concerns for people (e.g. the quality of the work environment) and harmony.	• Motivation is based on career success in the form of wealth, recognition and self-actualisation (either social or individual oriented). • At the workplace, people work hard for wealth and embrace innovation.

Femininity **Masculinity**

Weak Uncertance Avoidance

Figure 2.11 Four-quadrant typology of motivation conditioned by the UAI X MAS matrix (Source: based on Seirota and Greenwood, 1971; Hofstede, 2008; Steelcase, 2012).

***Individualism versus Collectivism*（IDV）**

Consistent with Nevis' (1982) discovery, several researchers show that in individualistic society employees see their relationship with the organisation from a calculative perspective (Buoyacigiller and Adler, 1991; Allen et al., 1988). People are less motivated by social needs but more by their self-interest. This has resulted in the extreme emphasis on personal welfare including workplace privacy (Hall, 1990) and individual ownership of space (Altman, 1975). However, in a collectivistic society, organisational commitment is often made based on relationship or emotional ties rather than individual incentive (Buoyacigiller and Adler, 1991). People with collectivist values tend to define needs in social terms. For example, working in the CBD areas recognised as decent and preferred in China. Therefore positive social identity is expected to lead to higher levels of organisational commitment in collectivist culture (Leung, 2001). This is quite different from individualistic society in which people stress get a job well done and preserving self-respect and honour (Hofstede, 1984).

***Long-term Orientation versus Short-term Orientation* (LTO)**

According to Hofstede (2008), long-term oriented societies value persistence and thrifty. People are predisposed to long-term relationships and future prosperity while having great tolerance for current discomfort. In contrast, people in short-term oriented societies are more likely to be motivated by short-term goals and immediate comfort. Following the argument, although the dimension has not been addressed in workspace research, it might influence the employees' tolerance of undesirable workspace feature and the intensity of needs for amenities.

In the light of the cultural influence on motivation sketched above, the universality of Vischer's (2008) hierarchy of workspace needs cannot be assumed. For instance, some researchers found that *Power Distance* tends to moderate the effect of empowerment on job satisfaction (Hui et al., 2004). It seems that in societies high in PDI, employee engagement in workspace design may not be appreciated. Similarily, in low PDI society, status symbols and territoriality might be less emphasised. Vischer's hierarchy of workspace needs, to some extent, represents an American way of thinking about the human-workspace relationship. It favours productivity and believes individuals are pulled by conscious job outcomes. But not all societies treat work and workspace in that way. For example, Varner and Beamer (2005) stated Arabians tend to see offices as places for meeting rather than control devices. Wright et al. (2008) also discovered that "emotion is the most important contingent factor driving Chinese workplace behaviour" (p803). In general, workspace preferences vary across nations and regions according to the

differences in cultural values. They are culturally moulded.

Values differ by professions as well as by nationality (Hofstede, 1972; 1984). People from different industries may have different requirements for workspace too. Hofstede (1972) argued those who deal with technologies tend to pay attention to functional aspects of artefacts while those who deal with people pay attention to social aspects. For example, architects usually stress a creative atmosphere of workspace to inspire ideas, but government workers tend to focus more on the social context and interpersonal relationships. Deal and Kennedy (1982) also noted that in regard to amenities, people in *Tough-guy* culture seem to prefer to purchase the newest trend that makes them feel stimulated while people in *Work Hard / Play Hard* culture tend to stress usability and comfort. In contrast, people in *Bet-your-company* and *Process* cultures are relatively conservative. Empirically, Langston et al. (2008) compared the employee satisfaction with workspace between government, educational, and commercial settings in Australia and found significance differences between these industries.

However, The influence of industrial culture on workspace preferences seems limited. Based on findings in three web design companies in the Netherlands, Van der Voordt et al. (2003) found that in spite of some typical characteristics of web designers, such as emphasis on creativity and high technology image, employees of the three company show to be ordinary people in regard to job selection criteria and workspace preferences.

2.4.4 Knowledge gaps

Based on the theatrical framework proposed in Chapter 1, employees' initial workspace preferences were treated as the pre-organisational context of their workspace adaptive behaviours, and recognised as mainly being influenced by the national, regional and industrial culture. Therefore, the influence of these three levels of culture on workspace preferences was reviewed in this section.

In general, it is found that, despite many researchers have elaborated how cultural values affect the preferences for work-life qualities, there remains no unify theory to explain the relationships between employees' workspace preferences and their national, regional and industrial cultures due to the lack of extensive empirical studies. The correlations between workspace preferences and cultural dimensions have not been fully understood. Because of this, hardly could this research posit hypotheses about workspace preferences of Chinese employees based on what has been know about their culture.

In fact, even if we knew all the correlations between workspace preferences and cultural

dimensions, it is till impossible to make predictions. This is because each culture may have its own sensory patterns, it is possible that researchers using existing models that are generated in other nations to test the workspace preferences of Chinese employees will miss some critical factors that they never encountered before.

Further, the literature reveals that one's workspace preferences are the affected by different levels of culture. Each level of culture affects may certain aspect of preferences. As such, certain differences amongst employees from different industries could be found despite their similarity caused by the same national / regional culture. However, the relative importance of national, regional and industrial cultures and their respective influence on workspace preferences have not been addressed in the literature.

2.5 Culture and workspace cognition

Workspace cognition is the process by which users collect and process spatial information, assess the disparities between their preferences and the reality, and then decide their workspace satisfaction. It is an interactive process. According to sociologists, in interactions, interactants will evaluate the *interaction position* (IP) and the *actual behaviours* (AB) of their counterparts to decide their reactions (Burgoon, 2014). IP represents the required or expected interaction according to the circumstance; AB are the interactive behaviours exhibited. It is believed that "if the AB is a negatively valenced behaviour than IP, then the anticipated interpersonal pattern is divergence, compensation or maintenance; conversely", and "if AB is a more positively valenced behaviour than IP, then the anticipated interpersonal pattern is convergence, matching or reciprocity" (Burgoon, 2014: p163).

In workspace research, we might see AB as perceived spatial qualities and the central concern for the cognition process is how spatial users perceive and evaluate AB. It involves three steps: perception, interpretation, and evaluation. Perception is the process by which space users collect spatial information to form a subjective project of the workspace in their mind. Interpretation is the process by which space users interpret the meaning of spatial cues to understand the circumstance in which they are involved. It is the process used by employee to understand their organisational context though spatial cues. The perceived organisational contexts would further influence how employees evaluate their workspace. For example, Leaman (1995) highlighted "*forgiveness*" as an important measurement of spatial attitude. He argued that employees would forgive faults when they know that every effort is being made to overcome them. All these three steps are culturally conditioned.

2.5.1 Cultural influence on the perception of workspace

Workspace is designed purposely to facilitate work management. It needs to be perceived and deciphered to be functional and meaningful. Thus the effect of environmental antecedents are in fact mediated by the cognition process (Latham and Pinder, 2005), particularly by the way that people perceive space. However, people's cognitive styles are culturally conditioned (Nisbett, 2003). Hall (1990) stated that our spatial experience is a screening process. People use their hands, eyes, ears, nose, skin, and muscles to perceive space and selectively screen some sensory data while filtering out others. Since people from different cultures "inhabit different sensory worlds" (Hall, 1990: p2), they are quite likely to perceive space in different way. For example, Hall (1990) found that while Arabians seems to pay much more attention to olfaction, German are more sensitive to acoustic disruption and crowding in public space.

There are some general trends that can be traced. Researchers discovered that one of the most important cultural differences in perception patterns between cultures is whether people attend to focal information or contextual information (Miyamoto and Eggen, 2013). It is suggested that people in East Asia tend to see visual images holistically and pay more attention to context and relationships while Americans tend to see visual images analytically by focusing on objects rather than context (Nisbett et al., 2001). For example, in a Rorschach test Abel and Hsu (1949) found that, when viewing a car picture, Americans tended to pay attentions to parts or single aspects of the pictures while Chinese Americans were more likely to emphasise all aspects of the car or its overall gestalt.

In parallel to this, Hall (1976) argued that there are *high-context* and *low-context* cultures. In *high-context* cultures communication relies much on the contextual cues whereas in *low-context* cultures communication relies more on explicit information. Because of the difference, Ross (1977) stated that a "*fundamental attribution error*" thus might happen in cross-culture communication – Americans tend to underestimate the importance of contextual factors while Asian people tend to overestimate the importance of contextual factors. Thereby, we might anticipate the latent meanings of workspace might more strongly influence employees' workspace satisfaction in China.

Not only national and regional culture influence perception, so do organisational and industrial cultures. Examples in the literature show that people in authority departments usually will pay more attention to status symbols due to their job requirement; and those in professional departments tend to focus on technologic solutions that support their work (Hofstede, 1972). It is also suggested that people in *Adhocracy* organisations may pay less

attention to space since change and flexibility are the cores of their practices but in *Hierarchy* organisations, layout reflecting clear organisational structures is a central concern (Riratanaphong and Van der Voordt, 2011).

However, scarce study has empirically addressed how the difference in perception patterns affect workspace perception in the literature.

2.5.2 Cultural influence on the interpretation of spatial cues

Information collection is the first step to understand space. Spatial cues that are perceived need to be further explained and interpreted to make sense to spatial users. The deciphered spatial meanings form the basic understanding about the organisational context.

The relationships between spatial cues and their organisational meanings have been extensively studied. Researchers generally believe that workspaces are the emplacement (Dale and Burrell, 2008) or embodiment (Hofbauer, 2000) of organisations. People organise space to organise organisations and activities. From the reading of spatial artefacts - what is displayed and not displayed (Mazumdar, 1988), it is possible to understand the values and norms of the organisation (e.g. Berg and Kreiner, 1990; Schein 2004) . Four types of space cues have been focused on in the literature, namely *control, organisational configuration, branding* and *humanisation*.

Control pertains to the vertical power distribution of organisations, and fundamentally reflects the basic managerial assumption about "whether employees can be trusted" (Adler and Gundersen, 2002). In some cultures, people are considered as basically evil, and employees are supposed to be untrustworthy. In contrast, some other cultures consider people are basically good, and employees are supposed to be reliable. The different cultural orientation would lead to different preference for supervision, empowerment and subsequent spatial layout. In workspace, *control* usually is related to two design issues:

- **Place of management.** It refers to the relative location of managers – how close to their team (Plijter et al., 2014). The place of management reflects the prefered management tyles. For example, being close to team menbers allows panoptical gaze and direct supervision, and being separated from team munbers usually is associated with the preference for empowerment.

- **Status symbols.** Status symbols provide the power map of the workplace by reflecting the distribution of power in the hierarchy. Several writers have advocated that the location, size, type, partition or wall height, number of windows, furnishing,

décor and desk accessories are an indication of a person's status in the hierarchy (e.g. Duffy, 1969; Sundstrom et al., 1982; Konar and Sundstrom, 1986; Zimring and Peatross, 1997; Schein, 2010; Vischer, 2005; Yanow, 2012). For example, the sociologist Goffman (1967) stated that a private offce may be used to maintain the image of the manager as "superhuman". Rogers and Agarwala-Rogers (1976) and Mats (1988) indicated that heads of departments or people higher in the hierarchy usually occupy the higher floor of buildings whereas manual labour is associated with the basement (see also Hofbauer, 2000; Yanow, 2012). Zimring and Peatross (1997) found that in Japan a desk enabling panoptical gaze on team members in the office also denotes a higher status.

Liaison. The term is borrowed from Mintzberg (1980) to reflect how an organisaiton is organised horizontally while control emphasises governing by power, a top-down way of organising based on hierarchy. It is manifested through the spatial relationship between people and between groups. Thus the proximity and boundary of personal and group territories and where people interact with each other could be focused.

- **Proximity.** The concept is related to the distance between workstations, working groups or the distance from workstations to collaborative space. Sailer and McCulloh (2012) argued that the physical distance might affect the likelihood of interaction between two persons or departments. Thus organisations stressing workflow efficiency tend to organise departments around the operation core or following the internal workflows (Riratanaphong and Van der Voordt (2011).

- **Boundary.** The division of workspace explicitly reflects the organisational structure and the territory of workgroups and individuals. Different societies seem to have different preference for it. For example, in European countries and the U.S., open-plan offices are often faulted by people in the space experiencing interruption and for the lack of privacy (Brill et al., 2001; Bencivenga, 1998; Brager et al., 2000). But this is not the case in Japan (Zimring and Peatross, 1997). Therefore, tracing how workspace is divided is meaningful for cross-cultural studies.

Branding is the way an organisation expresses its core values to influence the public externally and acculturate employees internally. Myerson and Ross (2003: p17) indicated that, "narrative office brings brand values alive, acts as a receptacle for corporate memory and gives employees constant visual stimuli in their environment to promote a service ethos". Three key elements are relate to organisational branding (CABE and BCO, 2005):

- **Location**. Locations laden with social meaning. For example, locating the

organisation in an expensive city centre is a symbol of power, and accessibility and proximity to clients indicate a client-focused value

- **Building image**. The shell and skin of buildings also transmit messages about organisational identity and values. For example, the skyscraper is widely recognised as representing power and success. Technological solutions such as heating, cooling and ventilation are suggested to communicate how 'leading- edge' an organisation is.

- **Interior decorations:** It is believed that office space is narrative; displays, art works or even colours in lobby, reception and working area all could be used to tell stories about the organisations and its values.

Humanisation has been highlighted as a necessity to improve work-life and enhance employees' trust in the organisation (Horr et al., 2016). Organisational researchers often see humanising the workplace as a form of the nonmonetary payment for employees (Gao and Deng, 2010). For example, Myers (1987: p269) argued that organisations "can reduce the salary levels needed to secure adequate labour (or secure more and better workers at the same price) if they locate in an area whose quality of life is attractive to workers". A common way to humanise the workspace is adding amenities to it. IFMA (2012) listed six types of amenities that are usually found at the workplace: 1) food and refreshments like canteens, breakout space and vending machines, 2) gathering and collaboration space like a lounge and multi-purpose space, 3) fitness and recreation facilities, 4) health and nursing facilities, 5) store and finance services, 6) internet café and library. But implementation of them varies across organisations according to organisational cultures. Van der Voordt et al. (2003) found that in a client-focused company, client satisfactions and marketing organisational brand is recognised as a priority, while employee satisfaction was recognised as less important; but in employee-focused companies the appearance of the workspace is more home-like with more amenities.

Without doubt, the manipulation of spatial cues is influenced is organisational culture. According to Cameron and Quinn (2006), in a *Hierarchy* culture that emphasises control, the workplace is formalised and structured. Workspace design compatible with this culture thus tend to stress environmental stability and structural clarity (Riratanaphong and Van der Voordt, 2011) and have more status symbols (Van der Voordt et al, 2003). In contrast, organisations with a *Clan* culture emphasis team works and loyalty and aim to develop a humane work environment for long-term benefit (Cameron and Quinn, 2006). Organisations with an *Adhocracy* culture change frequently, therefore their workspaces are often found to

be temporary: “the director did not have an office and set up temporary bases of operations wherever he thought he was needed” (Cameron and Quinn, 2006: p45). organisations with a *Market* culture are operated with less internal control and less hierarchy structure. Their major focus is to create competitive advantage with market sensitiveness (Cameron and Quinn, 2006), and workspace is used more as a marketing tool to create positive organisational image with less focus on internal integration (Van der Voordt et al., 2003).

Based on perceived spatial information, employees will evaluate how they are valued and what they are expected to do in organisations, and then form their own understanding about their organisation’s culture. But employees’ understanding is not necessary to be the same with the organisation’s intention as people’s spatial experience is affected by their emotional memories too. Emotional memories are the crystal of previous experience in other situations, mostly affected by the socio-cultural environment that one is brought up. Because of this, people in different societies tend to think and perceive organisations in different patterns (Hofstede, 2008). As result, workspaces in different nations and regions tend to manipulate spatial cues differently and appear to have different spatial configuration patterns.

For example, Steelcase (2012) analysed the typical office layouts in 11 countries. The findings to some extent are consistent with Hofstede’s (2008) argument about the cultural influence on organisational configurations (See Section 2.2.5). Figure 2.12 projects the typical layouts of China, UK, US, France and Germany on the PDI × UAI matrix. According to Steelcase (2012), in China executive offices are often seen as the most important part of the workplace and rare spatial subdivision could be found in open-plan work area. This is aligned to the *simple structure* of organisational configuration in which the strategic apex is recognised as the key part of the organisations. In France, in line with the high PDI plus strong UAI culture, workspaces appear to have clear distinction of space between functions and between managers and ordinary employees, aligning to the *machine bureaucracy*. In Germany, in line with the *professional bureaucracy* and low PDI plus strong UAI culture, subdivision of space based on professional group is usually used, and space adjacency between different work groups is stress to facilitate collaboration. This is quite opposite to the case of UK, in which open-plan design is dominant and workers have great mobility and organisational configuration features by *adhocracy*. Further, workspaces in UK tend to have large proportion of collaboration area with a range of alternative spaces chosen for different work modes and the administrative hub is usually big. Finally, Steelcase (2012) suggested that American offices can be summarised with one simple word – “cubicles”, turning different functional space into modules and arranging them in the space relatively equally. This is aligned to the *divisionalised structure.*

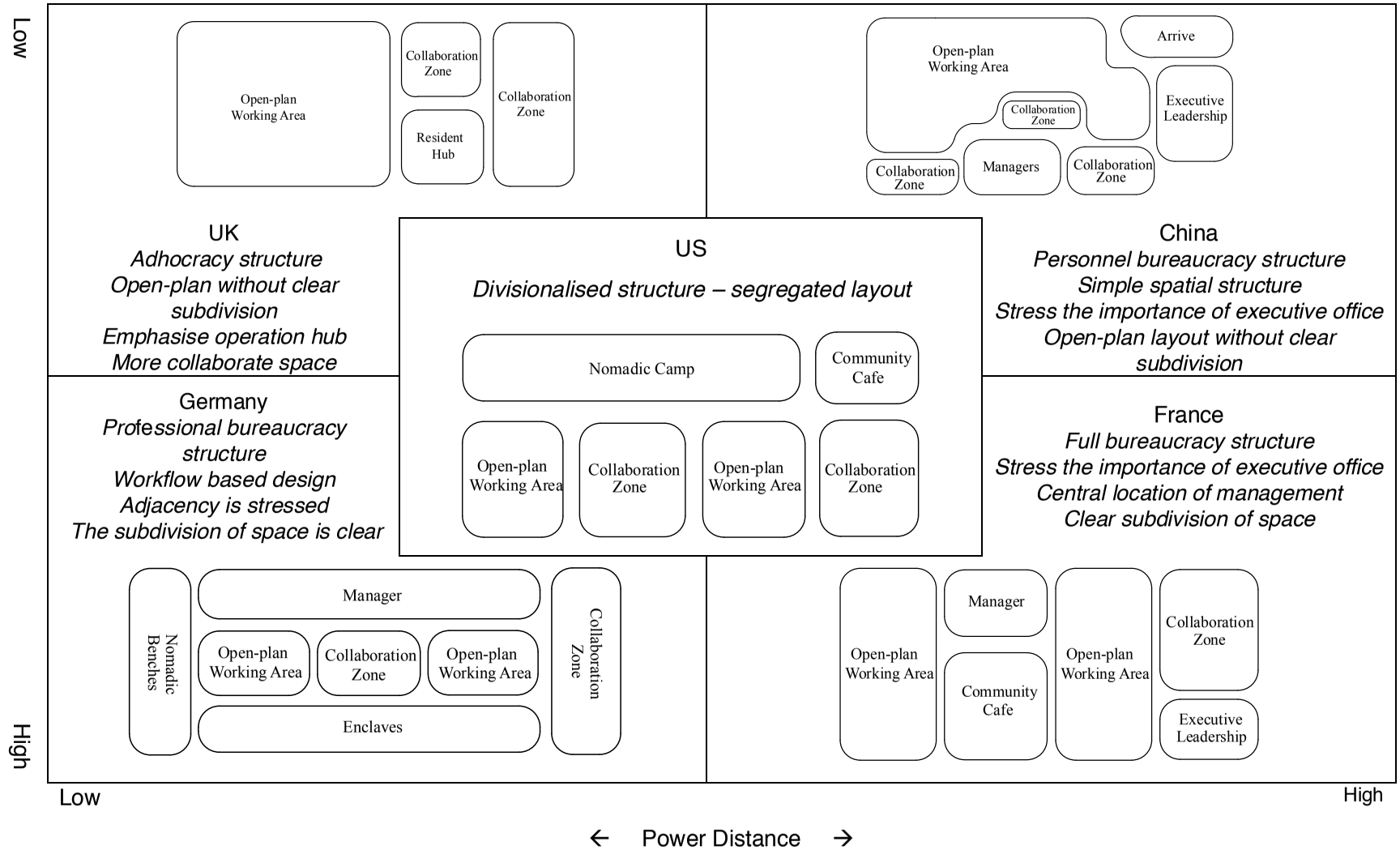


Figure 2.12 Steelcase's preferred office layouts projected on the PDI × UAI matrix

One cannot comment accurately on the validity of these typologies, but they show that special cues in different cultures are manipulated differently to deliver meanings and different nations and regions may have their own prevalent pattern to encode and decode spatial meanings. Misunderstanding are quite possible to happen in cross-cultural context. For example, it is likely that a Chinese would underestimate the status of a manager who has no private room in an American office. Knowing how spatial cues are manipulated therefore are meaningful for understanding the influence of culture on the interpretation of spatial meaning.

2.5.3 Cultural influence on workspace satisfaction and forgiveness

Based on the spatial cues that are collected and spatial meanings that are interpreted, employees will further evaluate their situation so as to develop their accommodative strategies in react to the organisational environment. They compare the perceived workspace qualities to their initial space preferences to identify space shortcomings, based on which they would develop their reactions. But the process may not be context free. It is possible that when the organisational culture is positively valued, employees will to adapt themselves to maintain the person-organisation fit and forgive the shortcomings in the workspace; in contrast, when both organisational culture and workspace are worse than expectation, dissatisfaction may arise, and the accommodative relationships become tough.

For example, Leaman (1995) argued that, while discomfort is absolute feeling, occupants' tolerance of discomfort seems to be much more dependent on other factors. Rapid response to changes and discomfort, manageable complexity, time saving for users, controls of interruption and damaging effects, and waste avoidance, all may contribute to occupant tolerance and bring about satisfaction and productivity.

Leaman (1995) hence suggests using "forgiveness" as the indicator to measure the effect of organisational context on occupation satisfaction. It was calculated by dividing the measure of overall satisfaction by the mean of detailed environmental satisfaction measurements. It is found that the subjective judgement of buildings as "good" or "bad" is corresponded with the forgiveness measurement. In other words, the concept of *forgiveness* reflects the joint effect of the physical environment and the organisational culture.

However, according to social psychologists, the extent to which contextual factors influence the evaluation of social events also differs by culture. Noting the different attention styles between East Asians and Westerners such as the Americans and Europeans, Masuda and

Nisbett (2001) suggested that there are two approaches of attribution:

1) An analytic approach adopted by the Westerners tends to detach an object from its context and use and categorise it basing on its attributes.

2) A holistic approach adopted by people in the East Asia tends to see an object and its context as a whole and evaluate and predict events on the basis of their relationships.

Following that argument, it is not a surprise to know that German "have some of the highest standards in the world and employees expect nothing less" (Steelcase, 2012: p52). With the analytic approach they make inferences based on decontextualised physical qualities of workspace.

These two different approaches have led to different understanding about *satisfaction* in the literature. An analytic understanding suggests that satisfaction is the extent to which users' environmental needs and wishes are fulfilled (Van der Voordt, 2004). Yet, a holistic understanding defines satisfaction as a pleasurable emotional state resulting from one's job experience (Locke, 1976).

At the same time, some organisational researchers also found that national cultural values inherently dominate the evaluation process. For example, Eskildsen et al. (2010) analysed the influence of national culture on job satisfaction in 22 countries with 25,411 respondents. The results show that at national level, job satisfaction is significantly influenced by the cultural dimensions *Masculinity versus Femininity* (MAS) and *Uncertainty Avoidance* (UAI). The higher scores of MAS and UAI a society has, the lower job satisfaction tends to be. And this influence is less likely to be eliminated by managerial factors (Eskildsen et al., 2010). However, their results also show that not all job-related aspects are influenced by Hofstede's cultural dimensions, and the influences of different cultural dimensions on the evaluations of different job-related aspects are not equal. This might be because of the different natures of different job-related aspects. National culture is more likely to influence those primarily involving social and personal values (Karahanna et al., 2005).

Work group and job characteristics also differentially affect workspace satisfaction. For example, Martin and Black (2006) found that employees' work positions have influenced their attitude toward their organisations' workspace. In a case study, they reported that workers in higher status tend to be more satisfied. Langston et al. (2008) analysed how employees appraise their workspace differently in three different types of organisation in Australia. Their findings show that employees in the commercial sector seem to be more

satisfied with indoor environmental quality (i.e. air quality, temperature, lighting and noise) while employees in the educational sector showed the highest satisfaction with factors related with spatial configuration and management (i.e. layout, workstation size, furniture, storage, meeting rooms, equipment, social space and privacy). Government employees showed the lowest level of satisfaction with both aspects.

The above case studies and theories all suggest the complexity of workspace satisfaction under the influence of cultures. However, despite the call for more research, there is still a lack of studies in this domain.

2.5.4 Knowledge gaps

The literature review reveals several different possible ways that cultural may affect the way people perceive and evaluation the world and decode spatial meanings. Based on the literature, two key knowledge gaps in regard to the research can be identified.

Firstly, conceptions such as the high-context versus low-context, and holistic-approach versus analytic approach have not yet been examined in the field of workspace research. As such, whether there were really differences in workspace perception and evaluation between nations, regions and industrial remains unclear.

Secondly, although the meanings of workspace as organisational artefact have been widely discussed in the literature. However, they have been scarcely compared between nations, regions and industries. As a result, how national, regional and industrial cultures affect the ways people decode spatial meanings is unclear too.

2.6 Culture and accommodative behaviours

Wolin (1961) argued that an organisation is a “grand device” to transform human irrationalities into rational behaviour. It is a dynamic and open social system (Nadler and Tushman, 1980) designed to solve the conflict between collective needs and individual wants (Wolin, 1961) so that organisational tasks can get done. In workspace design, there might be national / regional preferences shaped by the local culture, but the real organisational environments always vary. This has caused discrepancies between the reality and the desired. As a result, adaptations are inevitable. Leaman (2003: p155) stated that “this is why their (employees’) behaviour, with the occasional exception, is ‘coping’ or ‘satisficing’” (p156). Sundstrom (1985) suggested that users have two options to cope with the environment: change the space physically to fit them if possible or readjust their own

standard psychologically for reference. Most accommodative behaviours are triggered by the perceived environmental stimulation, but how people would like to create a person-environment fit seems affected by cultures too. Following the argument of Sundstrom (1985), accommodative behaviours can be divided into two categories: *physical accommodation* and *psychological accommodation*

2.6.1 Physical accommodation

Physical accommodation is the behaviour by which space users change the space to fit their needs and preferences. But according to the literature, the possibly for users to change their workspace usually is limited to their workstation and adjacent area. The term *personalisation* has been widely used to describe the changes employees make to their workstations or personal rooms. It is believed that through personalising personal space, for example, by displaying personal and work-related items, or rearranging the workspace elements such as tables and chairs, employees can make the space comfortable and familiar, and create a sociable and pleasant environment to fit their goals, preferences and the requirements of performing tasks (Brunia and Hartjes-Gosselink, 2009).

Konar and Sundstrom (1986) stated that the needs for control and territoriality, and expressing identity and status, account for the motivation of personalisation. Through personalising their workspace, people can feel a psychological ownership over space (Haynes, 2007) and express something about themselves to others (Baldry, 1999). For example, a photo may suggest the gender or marriage status of the person who occupies the space. Wells (2000) added that personalisation make employees feel like an individual rather than a “cog in a machine”. This may help employees to cope with stress while enhancing their attachment to the environment. Losing the ability to personalise and mark the boundaries of surroundings could significantly affect the emotional tie between employees and their workplace (Brunia and Hartjes-Gosselink, 2009), which is vital because it may affect the individual - organisation relationship (Scheiberg, 1990).

2.6.2 Psychological accommodation

When employees are not able to alter their workspace, they have to psychologically change themselves (Sundstrom, 1985). They may modify their expectations for workspace by referring to other organisational factors such as the compensation package, fairness, career prospects, supervision support, or even organisational difficulties and then forgive the “faults” in the workspace (Leadman, 1995). Here, to elaborate my theoretical thinking more clearly, I suggest that it is necessary to differentiate the concept *expectation* from *preference*.

I argue that both are initially shaped by people's local and industrial cultures as well as pervious living and working experiences, but when entering or going to enter an organisation, employees will rational evaluation the organisational situation and judge what they can anticipated from the organisations, based on which they form their expectations for the organisation. Figure 2.13 summaries the relationship between preferences and expectation. In other words, expectations are not context free. An individual might have different expectations and emphasises different aspects of workspace at different workplaces. For example, in China some people say when hunting for a job, they will consider good welfare and short working hours irrespective of the low salary for an offer from state-owned companies. However, when the offer comes from private companies, good salary would be a primary concern. Thus, it is important to understand employees' psychological reactions to both the workspace and the organisational context, so as to yield expected workspace performance.

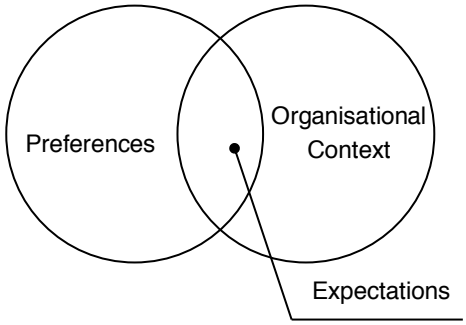


Figure 2.13 Preferences and expectations

2.6.3 Cultural influences on accommodative behaviours

Different cultures place different emphases on environment adaptive approaches (Weisz et al., 1984). Researchers found that while Western cultures such as the UK, the US and European countries stress the importance of exerting personal control over their environment to attain one's goals (Bandura, 1977), Eastern cultures such as China and Japan tend to emphasise accepting realities and modify themselves to fit the environment (Weisz et al., 1984). Psychologists call the pair of different approaches to create person-environment fit as p*rimary control* versus *secondary control* (Peng and Lachman, 1993).

Primary control emphasises changing the environment to fit people's objectives. To a large extent, it has shaped today's workspace management philosophy in Western countries. For example, in Vischer's (2008) hierarchy of needs, control over workspace is recognised as

a motivation factor that might increase employees' satisfaction. Concepts such as personalisation, user engagement and environmental control become significant in this context.

Conversely, *secondary control* emphasises self-adaptations. However, it has been scarcely addressed in the literature. This might be because most current workspace research has been conducted in western countries. Yet, anthropologists and psychologists believe that secondary control is the primary way that easterners react to external stimulations (Weisz et al., 1984). For example, keeping in harmony with the environment is seen as the most important principle in traditional Chinese environmental and social briefs. The *Fengshui* theory believes that men should design buildings, plan cities and place tombs following the natural environment in order to get the "blessing" of great nature, ghosts and gods. At work, Wright et al. (2008) found that Chinese employees are usually "economical with their speech" but "simultaneously proactive and astute listeners" (p802).

Bond and Smith (1996) argued that the different environmental adaptive approaches in fact reflect the different cultural orientations in term of *Individualism versus Collectivism.* In collectivistic cultures conformity is valued. People also are required to keep in harmony with their groups and "those who do not are very likely to be rejected by society" (Hofstede, 2008: p387). Leung (2001) noted that workers in collectivistic cultures are more unconditionally benevolent. A telling example is the case study of Kim and Markus (1999), which shows that, when given a choice Asians tend to select common objects while Americans tend to select unique objects. Kim and Markus concluded that Asians seem to prefer to adjust themselves to the majority's preferences while Americans prefer to act based on their own preferences. Similarly, Croucher et al. (2012) compared the conflict solution styles of Indians, Irish, Thai and Americans and found that people in high-context (collectivistic) nations prefer compromising more than their counterparts in low-context (individualistic) nations. This implies that, people in collectivistic culture are more likely to sacrifice certain personal interest to enhance in-group welfare to get group recognition.

The dimension *Long-term Orientation* versus *Short-term Orientation* may influence accommodative preferences too. People from long-term oriented societies emphasise self-improvement and are willing to adapt themselves to prepare for future success (Hofstede, 2008). For example, Peng and Nisbett (1999) found that East Asian cultures are more tolerant of contradictions by finding the "middle ways". In contrast, people from short-term oriented societies focus on immediate results and short-term benefits. As a result, they are more likely to change the environment to yield quick results.

Culture also influences behaviours at a tactical level. Brunia and Hartjes-Gosselink (2009) argued that personalisation is a process by which one attaches one's own value to the work environment, and thus the importance and extent of personalisation can differ from people to people, and from group to group. For example, they found that women use more visual ways of personalisation like photographs of family and decorations, but men usually personalise workspace with things related to their jobs or social contacts. Organisational culture may influence personalisation as well. Some companies see personalisation as office clutter and take a strong stance against it (Wells, 2000).

In regard to psychological behaviours, so far there is little research effort has addressed on them. But some fragmentary research findings in the literature shows that they are real and there. For example, based on a case studies in Thailand and the Netherlands, Riratanaphong and Van der Voordt (2011) and Van der Voordt et al (2003) found that in an organisation with a *Hierarchy* culture, employees correspondently rate the adjacency, location and subdivision of buildings as the three important aspects of workspace design, but in an organisation with a *Market* culture, employees tended to emphasise the accessibility of buildings and the organisational image.

However, it is still possible that there are some workspace preferences employees may not to give up, which has led to the similarities of workspace preferences amongst employees in the same nation, region or industry. Yet, what people are likely to compromise and what they will insist on in a certain culture remains unclear.

2.6.4 Knowledge gaps

Based on the literature review, it could be found that scarce research work has addressed the adaptive behaviours of office workers at workplaces while their importance has been noted. According to the findings from psychology, people in difference culture may have two difference preferred ways to cope with the external environment. But whether the same difference can be found at the workplace remains unclear. Although there are some fragment research findings showing how the differences in organisational culture drive the changes of workspace expectations, but the number of such studies is limited, and the results are not replicated by other researchers. As a result, the general trend of employees' accommodative preferences aligning cultural differences is still veiled.

2.7 Discussion

This chapter has discussed theories on the nature of culture and how different levels of

culture affect workspace design and management. According to the literature, values are the core to studying culturally related phenomena. Values fundamentally determine people's choices for behaviours, including their preferences for workspace and their behaviours in reaction to their workspace. Values guides what people pay attention to and how people feel about the things they find in the workspace. The feeling further affects people's choices about what they would do to make their environment "comfortable". They might compromise themselves to fit the environment or change the space to fit their needs when it is allowed. They will choose the most appropriate behaviours to create a "person-environment" fit by referring to similar situations that they have experienced in other places previously. In return, the experience at the workplace finally would become part of one's "emotional memories" (Gagliardi, 1990) that can be invoked to affect the cognitive process and accommodative behaviours at the next workspace. The series of behaviours form an action chain consist of initial preferences development, space cognition and behaviour accommodation.

Initial preferences are formed before entering an organisation. They are values about workspace qualities, affected by national culture, regional culture and industrial culture. Accommodative behaviours are practices in reaction to organisational culture and environment. They are invoked behaviours that are learnt and experienced in other situations. Therefore, the preferences for different accommodative behaviours are conditioned by national, regional and industrial cultures too. For example, the different preferences for *primarily control* and *secondary control* are culturally determined. In some cultures, people prefer to change physical space to narrow the gap between their given environment and their expectations while in other cultures people tend to change their own expectations to make themselves feel comfortable. The accommodative process involves a series of cognitive processes behaviours including information collection, interpretation and evaluation, whereby people judge the reality, identify the gap between the reality and the ideal, and determine what to do next. Again, the entire cognitive process, subject to the use of sensory organs, is influenced by cultures as well (Hall, 1976). What people pay attention to, how they interpret spatial meanings to understand organisational culture and how they evaluate spatial qualities, according to different researchers, are all culturally patterned.

Hence, two critical questions regarding the roles of culture in workspace design and management are: how do individuals' workspace preferences, cognition and accommodative behaviours relate to cultural values such as Hofstede' five cultural dimensions? How the effects are flexed in organisational environment? However, so far findings in the existing literature are fragmentary, mostly based on theoretical deduction and

thus are open to doubt. Although there has been a number of researchers studied the cultural issues in workspace design and management for different perspective, they tend to narrow their eye-sign within their own “cultural corner” and did not address the dynamic interaction between different levels of culture. Thus, their findings do not aid to the answering of these questions.

Because of the lack of rigorous study, another unsolved question concerns the “balance” between “global” and “local” in practice level: what kinds of workspace expectations or accommodative behaviours are mainly influenced by social values and what are mainly influenced by organisational factors? Although secondary control has been highlighted as a characteristic of cultures in the East Asia, which implies the important influence on organisational culture on Chinese employees’ workspace accommodative behaviours. Yet, hardly have workspace researchers have addressed it.

This is problematic. In fact, where there is need to balance organisational requirements and local preferences, there are disparities between employees’ initial workspace preferences and the reality, and disparities between employees’ values about workspace quality and the practice of workspace design. However, the contemporary literature tends to focus on the symbolic and managerial meanings of spatial cues and the workspace preferences of people with particular cultural values by overlooking the cultural dynamic of people’ accommodative behaviours and associated cognitive process whereby the disparities are overcome. As a result, a significant gap between research and practices has been found. For example, researchers might find that having privacy is important in individualistic cultures, but this does not stop the popularity of open-plan offices all overall the world. Therefore, understanding how the relative importance of certain workspace issues change under the conditioning of different levels of culture and organisational environment at the same time is of critical importance for successful workspace accommodation.

In summary, there remain several theoretical gaps in our knowledge system, which this research aims to fulfil by studying Chinese workspace.

3 The Chinese context

In the literature, I identified a small number of relevant studies related to cultural influences on the Chinese workspace (e.g. Steelcase, 2012, Herma Miller, 2010, O'Neill, 2012) . However, all these research works were not conducted by Chinese. A potential risk is, as cultural outsiders, these researchers might have study Chinese cultural phenomena through "coloured glasses", which is quite possible to lead to biases. For example, the important influence of Chinese architectural tradition was not addressed by them.

In fact, because of the lack of research, the Chinese workspace is still like a "black box" so far. Although we can guess what might be inside the box based on theoretical deduction, it should be noted that our current knowledge about cultural issues in workspace design and management is in fact incomplete, hence a purely theoretical approach might lead to loss critical information about Chinese culture and Chinese workspace. To avoid the risk, it is necessary trace where the box comes from. And I believe this is important for the research as Chinese culture has a time–honoured history. Although its recent history has been marked by turbulence and fast modernisation, the tremendous social change does not sweep out all its traditional values (Faure and Fang, 2008). Some researchers have found that today's Chinese "still endorse many traditional values" (Leung, 2008: p186). In particular, some are still influencing the business rituals and behaviours in China (Flynn et al., 2007), and quite possibly, will further influence the modern Chinese workspace.

Given the above reasons, further review of Chinese culture and Chinese workspace was felt necessary. This chapter reviews the historical Chinese cultural and architectural traditions. The ancient Chinese administrative buildings are sampled. The reason for selecting these buildings is because they are the building type closest to "office buildings". Their spatial configuration reflects how power was operated and people relationships were organised in building space, which are two main themes in modern workspace design too. This is followed by a brief review of the changes of Chinese office buildings and culture in their modernisation process.

In summary, the literature review in this chapter aims to introduce the cultural context of this research. Based on the review, it is possible to identify and summarise the spatial language and spatial ideology in traditional Chinese administrative culture. The results might help the later research studies by avoiding cultural biases when interpreting findings.

3.1 Characteristics of traditional Chinese culture

Researchers generally believe that traditional China was a society based on hierarchies and etiquettes. This can be traced to its Confucian tradition. In its core is the concept of "*ritual*" – the order and ethics in social life and family. Ruled by rituals, the society was structured and the roles of people in the society were prescribed (Faure and Fang, 2008). A social norm was "let the ruler be a ruler, the minister be a minister, the father be a father, and the son be a son[5]", and *"the ruler guides ministers, the father guides sons, and the husband guides wives[6]"*.

It is also suggested that traditional people were self-centred. Families, the basic units of the society, were like autonomous groups in ancient China. They emphasised internal harmony and integration while displaying a cold attitude and selfishness to outsiders (Fei, 2012). Chinese scholar Lin (1939) thus criticised that traditional China families were "walled castles". Fei (2012) further elaborated that in fact each people or family in ancient China saw themselves as the centre of the world. From this centre people developed a multi-layer social network to enhance themselves. The closer to the centre, the stronger is the relationship. People showed their benevolence to others differently according to this differentiated. The particularism led traditional Chinese to believe that the most effective way to get things done was to know the right people. "*Guangxi*" (relationship) therefore is stressed in Chinese culture. Similar "castles" and networks also existed in other social institutions such as business groups. Because of this social structure, the governance of traditional Chinese cultural in fact relied much on morality and the patriarchal system, and the roles of laws and legal regulations were diminished (Fang, 1999; Pye, 1984).

The de-emphasis of laws and legal systems was reinforced by Taoism (Sun, 1990), which focuses on the relationship between human beings and nature. In its core was the concept "*fate*" -- the uncontrollable and supernatural power that determines one's future. It views the world in terms of total uncertainty and suggests that man should follow the way of nature and use intuition to judge the world (Leung, 2008). Many traditional environmental concepts in the Chinese tradition arise from this worldview, for example, the *Fengshui* (geomantic) theory. It was developed based on the Taoism idea of "unity of men and nature[7]" (keeping harmony between people and the environment) and believes that the location and space

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[5] In *Analects: Yanyuan*. Original Chinese text: 《论语 · 颜渊篇》"君君，臣臣，父父，子子"

[6] In *Ritual Book: Hanwenjia.* Original Chinese text: 《礼纬 · 含文嘉》"君为臣纲，父为子纲，夫为妻纲"

[7] Chinese text: 天人合一

arrangement of cities, buildings and tombs can influence the events that occur to the occupants of the space or even their descendants (Cheng, 2016). It seeks to understand the influence of both the natural environment and man-made environment on human fortune and fates and aims to enhance positive environmental influences and avoid bad luck.

But the later development of *Fengshui* theory had been largely influenced by Confucianism which suggested that there are “rituals” in the great nature. For example, the Polaris is recognised as the star of emperors in ancient China because it is bright and never changes its position in the sky. Because of this, the north is recognised as being superior than other direction. Thus, in the planning of ancient Chinese cities, the palaces were always planned facing the south or located in the north part of the city. An example is the Chang’an city in Tang Dynasty (7th~10th century) (Figure 3.1). By doing this, emperors wished to get powerful reinforcement from the nature, and justify the rightness of their ruling.

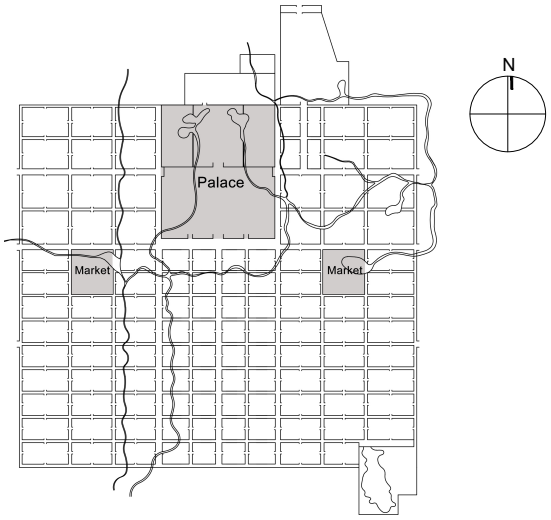


Figure 3.1 Planning of Chang'an City, 7th-9th century AD
(Source: Pan, 2004: p60; translated by Daibin Xie)

Apart from Confucianism and Taoism, researchers also suggest the important influence of Buddhism on Chinese culture. Buddhists believe that unhappiness is caused by desires and therefore stresses the importance of self-control and being peaceful in heart (Wallace and Shapiro, 2006). This largely influenced the way traditional Chinese people defined quality of life by stressing less desire and less complaint.

3.2 Ancient Chinese administrative buildings and their cultural nexus

The history of Chinese administrative buildings can be dated back to at least the early Zhou Dynasty (1046 BC - 771 BC). Archaeological discoveries reveal that by that time the embryonic form of later Chinese administrative buildings had been established. Figure 3.2 shows the master plan of a palace ruin in Shanxi Province 2700 years ago. It contains the same patterns that were inherited by later Chinese buildings, for example, symmetrical spatial arrangement, a series of courtyards, encircling walls and a main hall in the centre with rooms along the two sides.

In 221BC, the Emperor Qinshihuang unified China. To rule his huge empire effectively, a system of prefectures and counties was implemented. This resulted in great needs for administrative buildings. Compatible with this bureaucracy system, a hierarchical system of the administrative buildings was established. These buildings were built with the same pattern as the emperor's palace to symbolise his power (Yue, 2010) but different in scale and decorations according to the hierarchy. This system was inherited by latter dynasties.

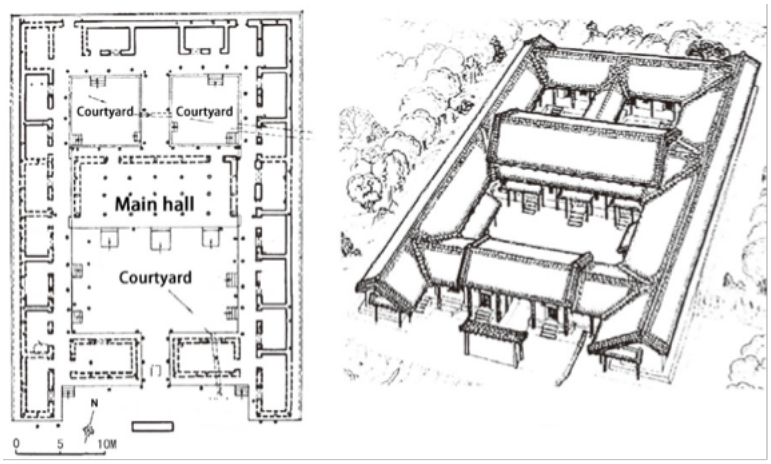


Figure 3.2 Reconstructed image of an ancient palace in Fengchu, Shangxi Province, Zhou Dynasty

(Source: Fu, 1998: p34, p41)

The 14th to 19th century was the golden age of ancient administrative building design in China. By this moment, China had developed a set of complex regulations to guide the design of administrative buildings. Here is a piece of the introduction in a document announced by the Emperor Jiaqing (reigned 1796 ~ 1820 AD) (Tuojin, 1992: p2142):

"All the chief civil and military ministers in each county should set up governmental offices. The regulations are introduced as follows: the main workplace consists of two halls; outside them is the main gate and etiquette gate; the living chamber of the chief governor is behind the halls. The places where subordinates deal with civic and military affairs are executive offices in front of the main hall. Governments at upper levels might have all the spatial configurations and those at lower levels should reduce their scale accordingly" [8].

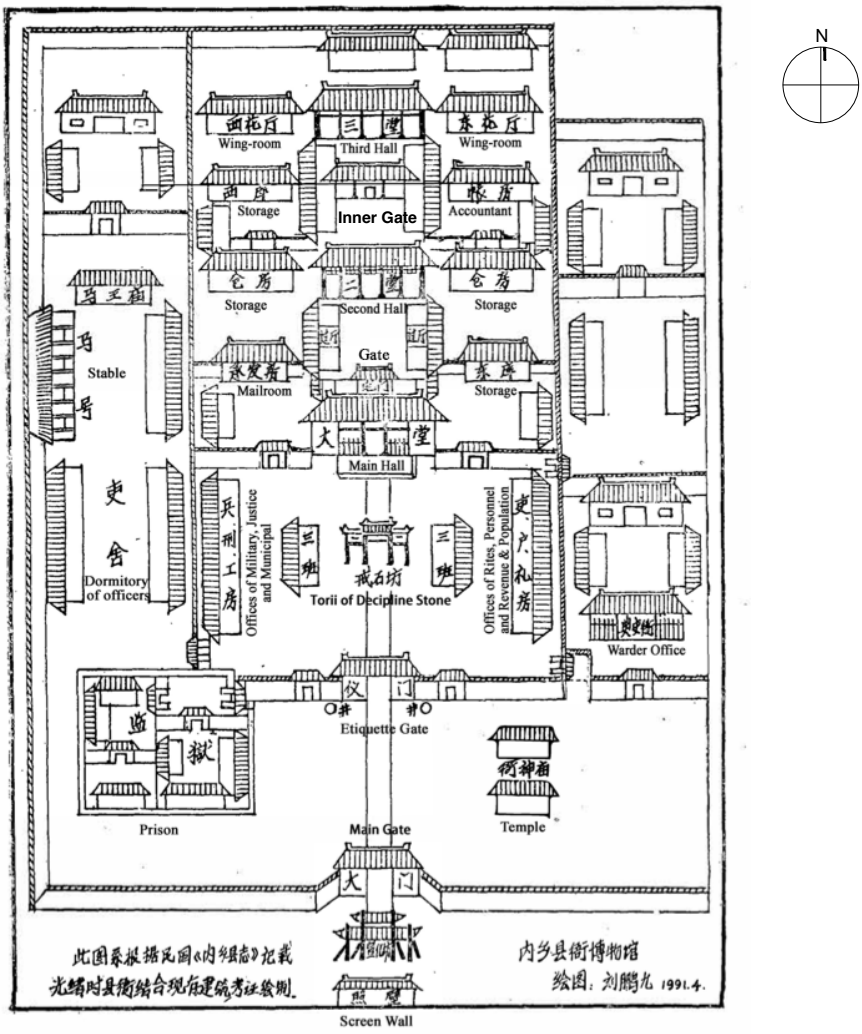


Figure 3.3 Master plan of Neixiang county office, 19th century AD
(Source: Liu, 1993: p81; translated by Daibin Xie)

[8] Original Chinese text: 各省文武官皆设衙署, 其制: 治事之所为大堂、二堂, 外为大门、仪门, 宴息之所为内室、为群室, 吏攒办事之所为科房。官大者规制具备, 官小者依次而减。-- Tuojin, 1992: p2142.

Figure 3.3 is an example designed under these guidelines. The map shows the master plan of Neixiang county office in the latter part of 19th century. The whole group of buildings is walled, and the master plan is symmetrical. Outside the etiquette gate, there is a prison in the west and a temple in the east. Entering the etiquette gate is a big courtyard with the main hall on the opposite end. The main hall is a multi-functional space in which legal suits were held, policies were announced and multi-sectional meetings was taken place. In front of it, on two sides, are offices of six civic and military departments. The six departments were in charge of personnel, revenue and population, rites, the military, justice and municipal respectively.

After the main hall is a gate separating the private space of county governors from the publicly accessible area. The private space of county governors mainly consists of two halls called the second hall and the third hall, and a number of living space. The second hall is the place where county governors worked or met visitors and subordinates. The third hall is the living room of the governor's family. On its two sides are a number of bedrooms (wing-rooms).

Nearly all the administrative buildings in the country follow similar spatial configuration. Li (2006) compared eight groups of county office buildings built during the 14th to 19th century and found that all the administrative buildings have three halls in the centre. The differences mainly exist in the scale of buildings and the decoration due to the difference in hierarchy. For instance, the main hall in the Forbidden City is 10-columns wide, but the main hall in Neixian county office is only 6-columns wide. The layers and colours of their roofs are different too.

Figure 3.4 Comparison of ancient Chinese administrative buildings at different levels of the hierarchy

Left: the main hall of the Forbidden city (source: http://www.naic.org.cn/html/2018/gjwh_0118/37004.html)
Right: The main hall of Neixiang county office (Source: http://www.nydi.gov.cn/2014/jyjd_0917/1978.html)

Figure 3.5 Comparison of ancient administrative buildings in North and Central China. Life: county office of Pingyao, north China (Source: https://www.google.com/pingyaoxianya); Right: county office of Nanyang, central China (Source: Yao, 2006)

There are also regional differences. Yao (2004) found that the distance from the political centre might moderate the rigid control system. For example, the design of administrative buildings in Southern China tended to be more flexible than their counterparts in the north. Wang and Wang (2012) also suggested the appearance of traditional administrative buildings was influenced by regional aesthetic preferences. In general, buildings in North China were chunkier while their counterparts in south China were relatively light and elegant. One might compare the county office of Pingyao in Shanxi Province (North China) to the county office of Nanyang in Henan Province (Central China). The former looks very heavy and masculine, and the colour is drab. The latter is more delicate and secularised, and the colour is more intense

Anthropologists believe that building form transforms social culture and enables social life (Buchli, 2013). The ancient Chinese administrative buildings are not exceptions. Yue (2010) documented that influenced by traditional culture, ancient Chinese administrative buildings show some distinctive spatial characteristics, for instance, planning based on hierarchy, having symmetrical layout and high enclosure level, textualisation of space and seeking to get reinforcement from the nature.

Apparently, the layout of ancient Chinese administrative buildings is associated with the social hierarchy. Building scale and decoration are not only different between buildings of different levels of government, but also vary according to users' status. For instance, in Neixiang county office, the space for chief governors occupied nearly 1/3 of the total space. The rooms of the six exclusive departments lining in front of the main hall are much smaller.

Xiang (2009) suggested that the hierarchical system in administrative buildings is isomorphic with the patriarchal structure of traditional Chinese families. In a traditional

Chinese family, the eldest person in a family usually was seen as the leader, occupying the biggest room while sons and grandsons were assigned to smaller rooms in its two sides orderly according to their seniority. Because order and rituals form the foundation of the society, it is not surprised that symmetrical layouts were preferred in ancient China, as they created a clear spatial structure to demonstrate hierarchies.

In a patriarchal system, to maintain the smooth running of the system, the patriarch needs to declare his / her ownership towards power with a dignified image. It is the same for ancient Chinese administrative buildings as representatives of imperial buildings. This is why ancient Chinese administrative buildings were always walled like a “castle” standing in the centre of cities. Walls defined who was involved in the operating of power. Ordinary people were excluded.

The master planning of ancient administrative buildings also tried to create an atmosphere to frighten people from offending the law and power. For instance, there is an old saying suggesting that, “*the door of Yanmen (administrative buildings) is as deep as the sea*”. From the main gate to the main hall where legal affairs were dealt with, there is always a long axis. When having a lawsuit, litigants needed to enter a series of doors and courtyards to reach the main hall. The spatial experience is daunting. This has cultivated a tendency that traditional Chinese people tended to keep their distance from the power.

In fact, walls and axes played an important role in traditional Chinese architecture. The whole country has the Great Wall, each city had its own walls, and so did buildings. The emphasis of walls implies a strong concern for privacy and territoriality in the mind of traditional Chinese (Goodsell, 1988). Goodsell (1988) pointed out that the traditional conception of space in Chinese people’s mind was based on territoriality. Chinese, traditionally, emphasise the validity and continuality of boundaries defining their territories.

Because of this, the ordering of traditional Chinese society in fact relied much on rituals rather than direct power intervention. Boundaries define where the power can reach. We can see that in the Neixiang county office, although the spatial organisation is basically centralised, the rooms of each department in fact are segregated and enclosed, impeding direct visual supervision. The symbolic meanings of space regarding order and status seems to have higher priority in the design of ancient Chinese administrative buildings than actual control needs. And axes provide a framework to organisation various spatial elements in a hierarchical order.

But this does not necessarily mean that functionality was not important in ancient Chinese administrative buildings. To some extent, they were planned following information flow. The

central location allowed the six executive departments to connect to the chief governor and other operating departments such as the prison easily. Information coming from operating departments was gathered in the six executive offices and then reported to the governors. The segregated location of governors allowed them to make decisions and policies secretively.

Xiang (2009) suggested the emphasis on boundaries reflects a tendency of privatisation of public space as the result of patriarchy. Because space was “privatised”, the buildings became platforms for governors to express their political values. They decorated buildings with painting or calligraphy work, or gave buildings elegant names (Xu, 2004). For example, the left picture of Figure 3.6 shows the text decorations on the entrance of a living room in Neixiang county office. The text means “reflect myself three times a day”. The right one shows the text decoration on the inner gate. It demonstrates that the three principles of ruling were natural law, legislation and discretion

Figure 3.6 Text decoration on the ancient administrative buildings in the Neixiang County
(Source: left: http://news.xinhuanet.com/local/2013-11/28/125775432_11n.jpg;
right: http://blog.sina.com.cn/s/blog_59a8ec2701019ikz.html)

Traditional Chinese buildings were not only designed as social institutions to facilitate social life, but also seen as the organic extension of the natural environment and were expected to follow “the way of nature”. For example, in the theory of *Fengshui*, southwest is considered as the direction towards heaven or hell, symbolising death. In light with this belief, in the master plan of Neixiang county office, the prison was arranged in the southwest part. Yue (2010) suggested that the environmental belief reflects a preference for “middle way” to avoid conflicts between people and the environment. Some researchers see this as a unique phenomenon of societies stressing *external control*. In such societies, people believe that reinforcements is under the control of external forces, such as fate, luck and human relationship.

3.3 Development of modern Chinese workspace and culture

The development of traditional Chinese architecture was paused at the end of 19th century. Tremendous change happened in Chinese office building design during the following century. Based on the literature, six phases could be summarised:

1) From later 19th century to 1910s was the period of first introducing foreign architecture into China. For the first time, corridor layouts appeared in China.

2) 1920s-1940s experience the return of traditional building style. The republic government wished to restore the national confidence and buildings were expected to express national characteristics. As a result, many eclectic buildings combining traditional Chinese elements and western architectural language were designed.

3) During 1950s -1970s, architectural style changes due to the political turbulence. Modern style buildings were introduced to China after the middle of 1960s (Xiang, 2009).

4) In the 1980s, most firms at that time were state-owned or collective enterprises. Corridor layout was still prevalent aligning patriarchal leadership. Figure 4.8 presents a typical floor plan of office buildings at that time. The rooms were small, accommodating 2 to 6 persons. Chief managers usually had a private room or even suites. The depth of offices was small (5-6m on each side of a corridor) for natural ventilation. Copy machines and typewriters were not used at the workplace.

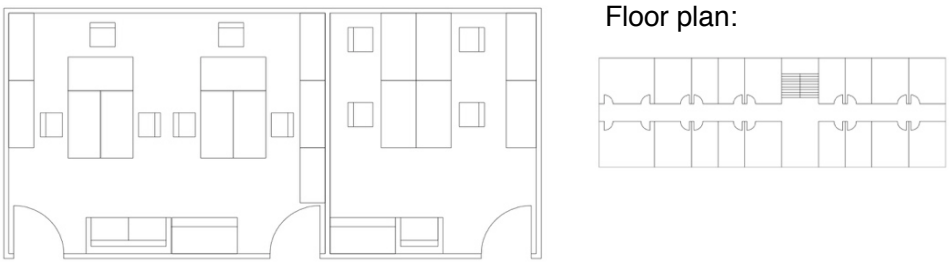


Figure 3.7 Office layout of a factory in Zhengzhou, Henan Province, 1980s
(Source: Du, 2008: p15, 18)

5) The1990s was the era of change. The western concept of “white collar” jobs entered the labour market coming with foreign direct investment (FDI) companies.

Commercial office buildings appeared and many new workspace design concepts such as open-plan office were introduced into China. High-rise office buildings started to be constructed in major cities.

6) After entering the 21st century, commercial real estate boomed in China and a large number of Class A and Class B office buildings were built. Office design exhibits various forms from cellular office, combi office, landscape office and open-plan office, all of which could be found in China.

At the same time, China is undergoing significant cultural change. For example, Faure and Fang (2008) observed eight paradoxes that exist in current Chinese culture, which are:

1) Relationship vs. Professionalism, suggesting the fading of traditional Chinese concept "*Guangxi*" in the society.

2) Importance of face vs. Importance of self-expression, suggesting that the traditional attitude of being modest, speaking about oneself with humility is challenged. The self-restraint attitude has receded to a certain extent, especially in large metropolis.

3) Thrift vs. Materialism and ostentatious consumption, suggesting the rise of a hedonistic consumption mentality due to economic development.

4) Family and group orientation vs. Individuation, suggesting that the interests of groups such as family or organisation are becoming less important in personal decision-making and in social regulation compared to earlier period.

5) Aversion to law vs. Respect for legal practices, suggesting the social changes from rule of man to rule of law.

6) Respect for etiquette, age and hierarchy vs. Respect for simplicity, creativity and competence, suggesting that while in social life respect for seniority remains the impassable norm, in professional life competence, merit, and performance play an increasing role.

7) Long-term orientation vs. Short-term orientation, suggesting the rise of short-term views in business while traditional Chinese norms such as thrift are still valued in social life.

8) Traditional creeds vs. Modern approaches, suggesting that people put more and

more trust and confidence in the effectiveness of modern approaches and technologies, however, neither of them has eradicated traditional Chinese beliefs.

In general, researchers believe that the Chinese culture is developing towards a more global direction while keeping its cultural distinctiveness. While some traditional values are fading due to the introduction of global culture, some others are still significantly influencing Chinese social life. But the change of Chinese workspace seems faster than the cultural change. To some extent, we can say that the changes in Chinese building design in the pass century is disruptive. Some writers criticise that Chinese cities and buildings are losing their cultural identify. But even so, we can still see that the influence of traditional building forms on the transforming of Chinese workspace was not eliminated at one time. Rather, the changes have happened gradually.

3.4 Discussion

Based on the above review, it could be found that there was a strong link between the design of the ancient Chinese workspace and the country's distinctive cultural tradition. Several features could be highlighted in regard to the interests of this research.

Firstly, it appears that, the needs for order and rituals to a large extent underpin the principle of traditional Chinese workspace design, and space was seen as meaningful in their spatial relationship and differentiation. For instance, most design attempts in ancient Chinese administrative buildings, such as organising the space symmetrically, differentiating rooms size based on the hierarchy, and placing the rooms of subordinates in front of the space of chief governors, all aimed to create an atmosphere to reinforce the hierarchical system. This stresses the importance of looking at how the power relationship in organisations is projected on space planning through various spatial cues in the following fieldwork.

Secondly, while social order and rituals relating to power operation are of the top importance in ancient Chinese administrative buildings design, flowing the natural "laws" also placed important influence on space planning. Traditional Chinese showed a preference to seek the reinforcements from the nature and external environment. They believed one's fate and luck can be influence by building environment. As a result, ancient Chinese were in fact highly sensitive to building environment. But being in awe of nature, traditional Chinese were not keen in changing the environment. It is noted that in traditional Chinese society, roles of people and buildings were both prescribed. During over one thousand years, the spatial configuration of Chinese administrative buildings had little changed. People in different eras adapted themselves to the same space. It seems that a preference for

secondary control in the human-environment relationship had been cultivated.

Thirdly, it appears that boundaries were highly emphasised in both social and spatial structures in ancient China. They defined the territory of cities, social groups and families, and helped people to shape their social identity. This cultural characteristic might be associated with the particularistic thought of people in collectivistic cultures according to Hofstede (2008).

Finally, the preference for using text or art works to decorate building also suggest an unique pattern of personalising building space. The personalisation of building space in ancient Chinese administrative buildings was not only for aesthetic purpose, but also used to express personal ideals and make the space meaningful. Through the text decoration, one could discover the particular taste and beliefs of a building owner while buildings were looked similar.

According to the literature, some of these historical patterns are continuously affecting the design of current Chinese workspace. For instance, Steelcase (2012) found that hierarchy continues to be embraced by China workers to maintain harmony and order, and executive and manager offices are important symbols of respect and order in the Chinese workspace. Similarly, Herman Miller (2010) suggested the Chinese work environment is like a family, planned and developed around hierarchy. Managers are patriarchs and employees expect and respect a strong leader and want a very clear structure in the company. Ignoring these inherited relationships might cause misunderstanding in workspace design. Therefore, by no meant can we cut off the tie of contemporary Chinese workspace to its ancient counterparts.

But the literature review also shows the changes of Chinese workspace in its modernisation process is significant alongside the introduction of western cultures. However, comparing to the change of buildings, it seems that the cultural change is relatively slow, showing paradoxical features. Inevitably, we would ask: do the changes in workspace design parallel the changes in social culture? Or just at a practice level?

It is fuzzy to answer the questions. For example, both Steelcase (2012) and Herman Miller (2010) noted the prevalence of open-plan layout and the lack of privacy in their case studies in China. Clearly, these findings contradict the traditional Chinese workspace patterns in which privacy and boundary were emphasised. But does this mean that there is a shift of Chinese people's workspace preference. Hall (1990) noted that while privacy is valued by Japanese, in subways Japanese tend to see other people as non-existent to cope with the overcrowded environment. It might be the same for Chinese office workers. For cultural-

related study, a risk is sometimes researchers are blinded if they do not have enough knowledge about the social context of their case studies, and the results might be confusing, or even misleading.

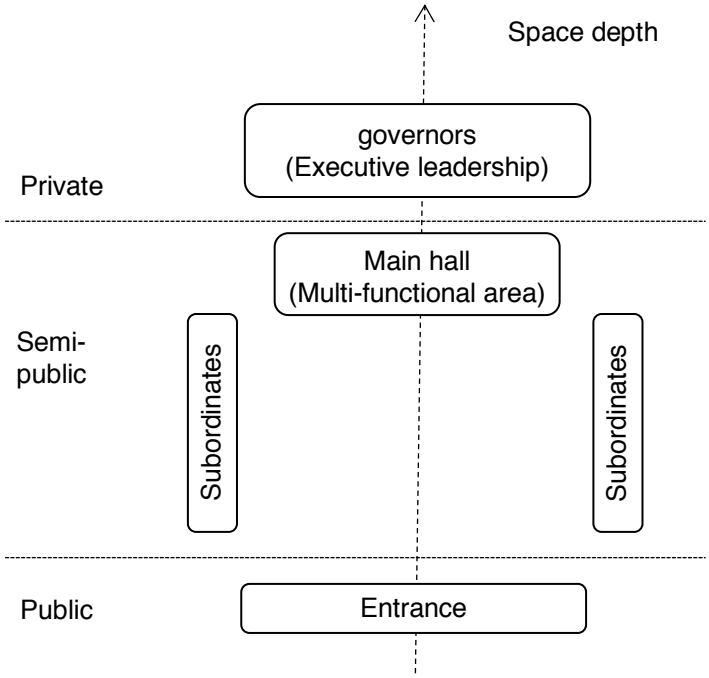


Figure 3.8 Typology of ancient Chinese administrative buildings
(Source: summarised by Daibin Xie)

In fact, if we compare the finding of this chapter to the literature review in Chapter 2, we can find that there are some other conflicts. Figure 2.9, for example, shows the typology of Chinese workspace summarised by Steelcase (2012). It presents a flattened structure with the room of persons in the peak of the organisational hierarchy close to the entrance. This spatial pattern is quite different from that of ancient Chinese administrative buildings reviewed in this chapter. Ancient Chinese administrative buildings tended to plan buildings along a longitudinal axis stretching from the south to the north (Figure 3.8). The space became less public following the axis and the private space of the person at the top of the hierarchy was hidden in a deep area. Department offices were in front of the mail hall for communication efficiency. It is over judgemental to say the difference is caused by cultural changes as Steelcase (2012) also argued that contemporary Chinese workspace is affected by the country's hierarchical culture like in the past. In fact, the validity of Steelcase's finding remains doubtable. It is possible that there is bias in the observers' eyes as cultural

outsiders, which led them to filter out some critical spatial cues such as the depth of space. It is important to note that what is seen is not always the fact as our sensory system is culturally bounded.

Clearly, there is much ambiguity and bias in the literature regarding to influence of cultural changes on Chinese workspace design. Knowing the historical context is helpful to grasp insight of cultural phenomenon and enable us to have a more critical mind to identify the knowledge gaps or misunderstandings and to guide further research work

In summary, this chapter reviews the historical context of Chinese workspace design. Some important spatial patterns and preferences were generated. In particular, the literature review of this chapter provides insights about how location and spatial structure symbolised social and organisational hierarchy, how this further affects the concern for privacy and boundary, and how space was personalised in Chinese cultural traditions. They are valuable to help the interpretation of findings in the following case studies. But that is not enough. Due to the possible disparity between values and practices at modern workplace, it is necessary to examine how the culture-rooted historical patterns are implemented or altered in contemporary Chinese workspace, and how the changes associate with culture in fieldwork. By doing this, we are possible to understand what are changeable and what are firmly stable in Chinese workspace under the context of globalisation. Thus, the generated historical patterns will be further examined in the fieldwork presented in the following three chapters. The results are expected to better inform the resolving of the global-local tension in workspace design and management and help to clarify the bias and confusions in our knowledge system.

4 Research design

The study of Chinese workspace is a new and almost uncharted territory. Thus, the research started with a literature review on how other researchers think about cultural issues at the workplace and how the historical Chinese workspace evolved with the national culture. They form valuable references for evaluating the scope of the research questions and avoiding cultural bias. In particular, Chapter 2 reviewed the cultural influence on workspace design and management at a theoretical level and identified current knowledge gaps relating to the research questions of this thesis; Chapter 3 reviewed the cultural context of Chinese workspace development from a historical perspective. It provides useful information about the indigenous workspace preferences and workspace perception and accommodative patterns. Based on the discoveries in these two chapters, research methodologies were designed to address the research questions.

This chapter outlines the methodologies followed. First, it outlines the critical consideration about the methodologies often used in cultural related research. Through this the choice of research methodologies is justified. Second, it states the criteria for choosing case studies and describes the sampled cities and organisations in brief. Third, it describes the research procedure in depth including types of data collected, the collection process and results. Fourth, its describes how workspace preferences and cultures were measured and how the physical workspace characteristics of organisations were coded in this research.

4.1 The selection of research methodologies

Being Chinese, the author might be thought to have better understanding about Chinese culture than researchers from other countries, enabling the interpretation of Chinese workspace phenomena with a deep insight. However, in the fieldworks, the author still adopted a more objective approach for two reasons. First, China is huge. The author grew up in the Fujian area where the culture and dialect are very different from the rest of China. Second, the aim of this research is not only to understand the influence of Chinese culture, but also to know how the effect is altered by regional, industrial and organisational factors. The comparative nature determined that a standardised method should be adopted to measure different case studies.

For research comparing cultures, questionnaire and interview tools are commonly used (e.g. Riratanaphong and Van der Voordt, 2011; Rothe et al, 2011, Plijter et al., 2014). By using questionnaires researchers can generate data in an easy, quick and amenable way. This is

particularly useful for large samples and repeated measures. Besides, the data are standardised and quantitative, thus easy to analyse. However, questionnaire surveys often take these advantages at the cost of containing little contextual information. Moreover, it is hard to obtain data on behaviours through questionnaire survey (Harrison, 1992). In contrast, interviews can provide more flexibility and enable researchers to get richer data about the context. But they are time-consuming and therefore the sample size is usually limited. And data collected by interviews are hard to analyse.

But these two methodologies are conducted under the intervention of researchers. Some researchers suggest that it would be more reliable to use a natural approach to conduct research by coding of language, documents and behaviours emerging from a nature situation. For example, Plijter et al. (2014) coded the differences in office layout in their cross cultural studies. However, the validity and value of research results relies much on the researcher's professional skills. The cultural position of the researcher (insider or outsider) could cause observer bias and influence the interpretation of cultural phenomena (Headland et al., 1990). Particularly, cultural outsiders may not be able to understand the complexities of a culture of which they are not a part.

Table 4.1 Research methodologies used

Methodologies used	Considerations in choosing the methodologies
Structured questionnaires: Standard choices plus open-ended questions	Quick and easy to collect data Repeatable, standardised measures for cross-case comparison Possibilities of measuring intangible mental schema Easy to quantify data and produce statistical results, particularly when the sample size is huge
Interview: Fixed questions plus open-end chatting	Ability to get background information Adaptability to fit to each organisation's situation
Site visit: Photo taking plus space characteristics coding	Collect first-hand objective data independent of respondent's cognitive bias and personal traits Enable the researcher to understand the situation and context Rich data on hard-to-measure elements
Space coding based on Layout drawings and site visit	Enable quantitative comparison of spatial parameters

There are also researchers using experiment-based methodologies. But in workspace research, they are often faulted. For example, Leaman (1995) argued that occupants' tolerance of discomfort is influenced by the environmental context, which implies that there are always disparities between experimental measures and real-world measures.

Each methodology has its own advantages and advantages. To avoid bias caused by a single method, this research adopted mixed-methodologies for fieldwork. This is because "*the more different our base points, the more accurate our measurement*" (Hofstede, 2008: p5). For this research, crucially, without mapping the respondents' "mental program" through questionnaire survey, it would run the risk of producing an account based on observer bias. However, a questionnaire survey rarely provides information about the physical workspace and the environmental behaviours of respondents. To overcome the shortcoming, interview, site visit and document analysis were also employed in this research. Table 4.1 outlines the key methodologies employed and the underlying theoretical and practical considerations

4.2 Research process

At the very beginning of the research, a pilot study was conducted to test the feasibility of using existing concepts and tools, and to identify key issues for Chinese office workers' spatial preferences as much as possible. This helped to avoid missing crucial workplace preferences in Chinese context. Based on the results and the complementary information from the literature review, a questionnaire was developed to elicit views of Chinese workspace preference and culture. In addition, a coding sheet was designed to record spatial configurations and artefacts. Then the two tools were used to collect data in the fieldwork.

The fieldwork consisted of two phases. The first phase tried to collect data from as many Chinese cities as possible so as to reflect the general trend of Chinese workspace preference. The second focused on eight offices of four organisations in two cities. The four organisations came from two industries. This allows the comparison of organisational effects while other cultural conditions are controlled.

Data analysis was performed in two separated studies:

1) *Study 1* tested the influence of national culture on Chinese employees' workspace preferences and cognitive patterns, as well as how the regional and industrial cultures flex them by using all the data collected in the fieldwork. The result

theorised how cultures affect employee-accommodation relationship before taking into account any organisational effects.

2) *Study 2* further examined how organisational culture and the physical environment of organisations influence employees' workspace satisfaction and adaptive behaviours in organisations. Data collected in the second phase of fieldwork were analysed.

4.3 Selection of case studies

To investigate the interference of national, regional and industrial effects, proper selection of case studies is important. In addition, due to the time and resource limitation of PhD research, it was not possible to cover all its subcultural zones in China. Thus, while data were collected from as many cities as possible to reflect the general trend of Chinese culture, eight offices in two cities were chosen to conduct more focused research. Some criteria were set up to guide the choice of cities and organisation to conduct fieldwork.

4.3.1 Selection of regions

According to Przeworski and Teune (1970), the more similar the compared systems are more clearly we are able to see the cultural factors to which the differences connect. Therefore, a principle of selecting regions was made as: *different in culture but similar in other social-environment conditions.* Based on those considerations, Shanghai and Guangzhou, the central cities of two totally different regional cultures, were selected as case studies in this research. The two cities are similar in geographic, weather and economic features. This enables the research to reduce the variation from these non-cultural variables.

4.3.1.1 Guangzhou

Economy and geography: Guangzhou is the central city of the Pearl River Delta, which is known as the Cantonese area. The Pearl River Delta is one of the most developed, wealthiest areas in China. The climate is hot, humid and rainy in summer; warm and dry in winter.

History: According to historical records, the earliest Guangzhou city was established between 221BC - 206BC. After the 3rd century, it served as one of main ports of the Maritime Silk Road in South China. In the Qing Dynasty, it was the only open port of the

country before the Opium War (1840-1842). This privilege had made Guangzhou become one of the top three cities in the world at that time (Local Chronicles of Guangzhou, 1989). Historically, the population in the Cantonese area was composed of Han, Yao, Hui, Manchu, Yi, Li and other minority groups (Littrell et al., 2012).

Cultural stereotype: Cantonese believe that their culture is the legacy of the ancient Chinese culture like their dialect (Ye and Luo, 1995). Their ancestors moved from the Central Plain area through several migration waves (Chen, 2007). In Chinese literary works Cantonese are usually described with words such as practical, clever (sometimes cunning), hardworking, enterprising, barbaric, and risk-taking. These stereotypes in general provide useful classification systems from which we may have a glimpse of the cultural distinctiveness (Littrell et al., 2012).

White-collar workers and migrants: According to the data of national population census in 2010， the number of white-collar workers in Guangzhou is about 1.55 million[9] (Guangzhou Statistics Bureau, 2013). By the end of 2015, migrants account for 36.7% of total populations (Guangzhou Statistics Bureau, 2016). Li (2009) reported that migrant whiter-collar workers in Guangzhou primarily come from adjacent provinces like Hunan, Hubei, Henan, Guangxi, Sichuan and Jiangxi.

4.3.1.2 Shanghai

Economy and geography: Shanghai is the central city of the Yangzi River Delta. It is the financial, logistical, and manufacturing centre in East China. The climate is hot, humid and rainy in summer, but cold and dry in winter.

History: Shanghai did not gain the world's attention until the middle of 19th century. Before that it was only a small port in Yangzi River Delta. However, after the Opium War, by realising the economic and trade potential of the city, several Western countries set up their concessions in Shanghai. The infrastructures of the city were improved and the city economy started to flourish. By 1930s, it had become the financial hub of the Asia Pacific area (Wasserstrom, 2009). Historically, the Yangzi River Delta was populated mainly by Han (96.5%) (Littrell et al., 2012).

Cultural stereotype: Its unique history shaped the Shanghai culture distinctively from other Chinese cities. In literature, Shanghai culture has been described as the hybrid of Western

[9] Calculated based on the numbers of professionals and clerical employees

culture and ancient Wu culture. While its dialect and aesthetic preferences stand for the legacy of ancient civilisation which were “soft and poetic”, Liang (2010) argued that today Shanghai is “mainly understood to reflect the impact of Western ideas and style”. In Chinese movies, TV programs or novels, Shanghainese are often described as feminine, mammonish, calculating, clever and gentle.

White-collar workers and migrants: According to the data of national population census in 2010，the number of white-collar workers in Shanghai is about 3.57 million[10] (Shanghai Statistics Bureau, 2014). By the end of 2015, migrants account for 40.1% of total populations (Shanghai statistics Bureau, 2016).

4.3.2 Targeting organisations

Four criteria were set to select case studies according to the research interest:

1) To highlight the influence of Chinese culture, a comparison between domestic organisations and FDI organisations is necessary.

2) To highlight the influence of regional cultures, it is necessary to select organisations that have offices in Shanghai and Guangzhou at the same time.

3) To highlight the influence of industrial cultures, it is necessary to compare organisations coming from at least two different industrial sectors.

4) To highlight the influence of organisational cultures, it is necessary to compare two organisations in each industrial sector.

Based on these four considerations, five organisations that fulfil all the four criteria were contacted and finally approvals to conduct research were obtained from four of them. The basic characteristics of the four organisations are described in Table 4.2

[10] Calculated based on the numbers of professionals and clerical employees

Table 4.2 Description of case studies

Organisations	AA		JJ		TT		FF	
Industry	Manufacturing		Manufacturing		Graphic design		Graphic design	
Home country	Netherlands		U.S.		China		China	
Regions	SH	GZ	SH	GZ	SH	GZ	SH	GZ
Ownership	FDIC	FDIC	FDIC	FDIC*	DPC	DPC	DPC	DPC
No. employee	>800	120	>500	52	20	95	120	185

Note: * the department was purchased in China. Originally it was a Chinese private company
FDIC= foreign direct investment company; DPC= domestic private company
SH=Shanghai; GZ= Guangzhou

4.4 Pilot study

Due to the lack of research illustrating the actual cultural characteristics of China and the scale of regional difference between Chinese subcultures in the literature, using existing cultural questionnaires directly might make this research run a risk of ignoring critical values of Chinese culture and subcultures. Methodology developed in the European countries or the USA might be culturally bounded and therefore insufficient for the study of a specific culture in east Asia (The Chinese Culture Connection, 1987), A similar concern is also held regarding the use of existing workspace evaluation tools.

To avoid cultural bias, a pilot survey is conducted by using three open-ended questions to qualitatively capture the regional differences in both culture and workspace preference. The aim was to avoid omitting critical cultural values and workspace preferences. The questions are:

1. What do you think are the most important cultural values in your current city?

2. What do you like best about your current workspace?

3. What do you dislike most about your current workspace?

In the pilot survey, a structured interview and an online questionnaire were developed consisting of the above three questions plus questions about respondents' gender, cultural background and age. Respondents were asked to highlight up to five items for each open-ended question. The initial interviewees were selected purposely from the researcher's acquaintances working in Shanghai (n=7 from 7 organisations in 5 industries) and

Guangzhou (n=24 from 20 organisations in 7 industries). They were interviewed through an online instant messenger app called WeChat. After the interview, interviewees were requested to distribute the link for the online questionnaire to their colleague and white-collar friends. 163 responses finished the survey. Table 4.3 illustrates the demographic characteristics of the respondents.

Table 4.3 Demographic characteristics of respondents in the pilot study

			Guangzhou (n=81)	Shanghai (n=82)
Gender	Male (%)		60.5	34.1
	Female (%)		39.5	65.9
Migration background	Indigenous (born and grew up in the city) (%)		43.2	52.4
	Migrants	Living in the city > 10 years (%)	17.3	25.6
		Living in the city 5-10 years (%)	18.5	12.2
		Living in the city <5 years (%)	21.0	9.8

The answers of open-ended questions were coded to create synonymous groups. Words or phrases with close meaning were put into the same group. This process was performed in Chinese to keep the original meaning of the answers (The Chinese Culture Connection, 1987; Brislin et al., 1973). To ensure the reliability of coding, another Chinese organisational researcher and the author each coded the questionnaire separately and the "synchronic reliability" (Kirk and Miller, 1986) of the two coding sheets was tested. The process was conducted following the illustration of Krippendorff (1980). They divided the respondents into 41 groups (40×4+1×3=163) and allocated a number to each group. Then each of them independently coded the answers of the first group into synonymous groups. They then discussed the disagreements and then continued to code the second group, and so on until there was no new synonymous group emerging. At the end, the contents of the two coding lists were compared and some minor disagreements were discussed at the end. A similar coding process had been employed by Rafaeli and Vilnai-Yavetz (2004).

Table 4.4 Values found in the pilot study matched to VSM dimensions

Value	Equivalent dimensions in CVS	Equivalent dimensions in VSM	Literature
1. Smartly Calculating	"Thrift" in Confucian dynamism	Long-term orientation	Faure and Fang (2008)
2. Pragmatism		Long-term orientation	Hofstede (2008)
3. Thrifty	Confucian dynamism	Long-term Orientation	The Chinese Culture Connection (1987);
4. Persistence	Confucian dynamism	Long-term Orientation	The Chinese Culture Connection (1987);
5. Respect tradition	Confucian dynamism	Short-term orientation	The Chinese Culture Connection (1987);
6. Competitiveness	Anti "Integration"	Individualism	The Chinese Culture Connection (1987);
7. Self-expression		Individualism	Faure and Fang (2008)
8. Individualism			Hofstede (2008)
9. Tolerance of others	Integration	Collectivism	The Chinese Culture Connection (1987)
10. Trustworthiness	Integration	Collectivism	The Chinese Culture Connection (1987)
11. Harmony	Integration	Collectivism	The Chinese Culture Connection (1987)
12. Being modest		Collectivism	Hofstede (2008)
13. Materialism		Masculine	Hofstede (2008)
14. Quality of life		Femininity	Hofstede (2008)
15. Kindness	Human-heartedness	Femininity	The Chinese Culture Connection (1987)
16. Courtesy	Human-heartedness	Femininity	The Chinese Culture Connection (1987)
17. Normative		Uncertainty Avoidance	Hofstede (2008)
18. Adventure spirit		Uncertainty Acceptance	Hofstede (2008)
19. Hierarchy		Strong power distance	Hofstede (2008)
20. Egalitarian		Week power distance	Hofstede (2008)

Note: VSM = Value Survey Module, CVS = China Value Survey

Data analysis yielded 23 synonymous groups of cultural values (Appendix II). They were labelled with equivalent English terms as has been proposed in the literature. Ten of them overlap the values in the Chinese Value Survey (CVS). CVS is a cultural survey specifically addressing Chinese culture. Through the correlation between CVS dimensions and Hofstede's cultural dimensions (The Chinese Culture Connection, 1987), we are able to verify the validity of Hofstede's Values Survey Module (VSM) in this research. The remaining values were compared to Hofstede's interpretation of his dimensions. Equivalent expressions were found for the most of them except "cosmopolitan", "modernised" and "commercialised". Redfern and Crawford (2010) and Ralston et al. (1996) argued that they were associated with the adoption of Western behaviour and values, could be further broken down into more specific values, thus are not basic cultural values. To reduce data redundancy, they are excluded from the final. Table 4.4 presents the culture values generated in this study compared to the CVS and VSM dimensions.

In terms of workplace preferences, the pilot study yielded 39 synonymous groups (Appendix III). They were labelled with equivalent English terms as has been proposed in the literature and then categorised into 10 factors based on the workspace components they are concerned with. The workspace components are 1) location, 2) buildings appearance, 3) indoor environment qualities (IEQ), 4) functional comfort of layout, 5) aesthetics of interior design, 6) on-site amenities, 7) workstation condition, 8) environmental psychology，9) property management, and 10) overall performance. Based on these workspace factors, as well as literature review, the Workspace-Culture Survey (WCS) questionnaire was developed for fieldwork.

4.5 Questionnaire design

4.5.1 The development of Workplace-Culture Survey (WCS) questionnaire

Although user needs for workspace have been well studied in the literature, different researchers tend to take up different perspectives to understand workspace and measure office workers' workspace preference in different ways. Thus, most existing workspace survey tools are constrained in their use due to the different purposes that they are developed for. But so far there is no questionnaire or interview methodologies mentioned in the literature that was developed especially for the investigation of cultural issues in workspace design and management. Although some questionnaires such as the Work Environment Diagnosis Instrument (Volker and Van der Voordt, 2005) had been applied in cross-cultural studies, they does not incorporate cultural measurements and as a result,

could not test the connections between cultural values and workspace preferences directly. Because of this gap, a new questionnaire called Workplace-Culture Survey (WCS) was developed based on the workspace features that were mentioned by respondents in the pilot study plus the information generated through the review of traditional Chinese workspace (Chapter 3). Differfing from other workspace survey questionnaires, the WCS questionnaire has a section specially addressing the measurement of respondents' cultural values and perceived organisational culture. This enables the statistical analysis on correlations between cultural dimensions and workspace satisfaction, preferences or expectations.

The surveyed items in the WCS questionnaire are listed in Appendix IV. They comprise eight main workspace constructs, (location, building appearance, functional comfort of office layout, psychological comfort and aesthetics of interior design, on-site amenities, workstation and adjacent IEQ, property management and overall performance of workspace), two cultural sections (measuring individuals' values and their organisation's culture respectively) , and six individual features (age, gender, city, cultural background, industry and workstation type they are occupying). They are discussed further below, both how such constructs have been understood and used by other researchers and how they were operatised in this research.

4.5.1.1 Location

In the WCS, location is assessed from three aspects: the accessibility of buildings sites, adjacent amenities and how the location reflects organisational power.

Accessibility: Commuting convenience has been widely evaluated in workspace post-occupancy evaluation (POE) studies as an important indicator to assess the performance of the workspace. Rothe et al. (2011) found that accessibility of the building was the third most important workspace element people rated in Finland and the Netherlands. It is affected by the transport connection of office sites and has significant influence on employees' commuting time and the organisations' external communicational efficiency. Because of this importance, accessibility of office sites was adopted as indicator in the WCS.

Adjacent amenities: Beside accessibility, the quality of surrounding environment also influences office workers' satisfaction (Lubieniecki and Desrocher, 2003). Horr et al. (2016) stated that offices located in proximity of public infrastructure have higher employee satisfaction and attract more employees. Adequate parking, attractive shopping facilities and restaurants all may contribute to employees' workspace satisfaction. World Green

Building Council (2014) also reported that amenities have become the fourth most important factors in employees' location decision- making.

Location reflecting organisational power: Location does not only serve as a functional attribution. As reviewed in Chapter 3, in Chinese tradition, location serves an important spatial cue to indicate power and social hierarchy. For example, ancient administrative buildings were always arranged in the centre or north part of cities. Therefore, the item is incorporated in the WCS questionnaire too, although it has been scarcely addressed in workspace studies.

4.5.1.2 Building appearance

Building appearance as the aesthetic aspect of buildings, is often overlooked in the post-occupancy evaluation of workspace (Windlinger, 2008). However, Preiser and Nasar (2008) stated that building appearance can draw people in or repel them. It is an important factor to build organisational identity (Hatch and Schultz, 1997). But the importance of building appearance seems culturally different. For example, in the case study of Riratanaphong and Van der Voordt (2011) in Thailand, the appearance of the building was rated as the fifth most important workspace element, but the term was rated as less important in the case studies of Rothe et al. (2011) in Finland and the Netherlands. In China, it is possible that buildings appearance might be prioritised since the concept of "face" is valued.

4.5.1.3 Functional comfort of office layout

Inside an office building, each organisation occupies an area or a number of floors as its own territory. The space is expected to support the internal control and communication through proper division of space. This has raised the debate about whether office space should be design as open as possible to enable more visual control and communication, or be less transparent but more flexible to empower employees (Been and Beijer, 2014). But actually there is no consensus about which is better (De Croon et al., 2005), It seems that, different cultures tend to have different preferences. According to Chapter 2, it is possible that in cultures preferring *Personal bureaucracy* management, control by people is emphasised and thus open-plan offices facilitating supervision are preferred; but in cultures preferring *Professional bureaucracy* management, regulating work process and skills is emphasised and thus workspaces are designed based on work flow and employees are empower to have private space; and in *Adhocracy* culture, neither control and rigid work flow is liked, and thus workspaces design turn out to have more flexibility and to enable remote working. Therefore, the functional comfort of workspaces can be defined differently

in different cultures.

In the pilot study, openness and communication were mentioned by respondents frequently. But it is also interesting to found that there is also a number of respondents reported flexibility or freedom as factors they liked. This might be because of the introduction of new communication technologies such as wireless connection and laptops which have enable remoting working. Increasingly, today's employees expect to have more "location freedom" to choose the place and time to work according to the needs of the task and work-life balance (Gibson, 2003). In fact, agile working or smart working has become a serious concern for most organisations today due to the increasing property rent and changes in working patterns and work cultures.

Therefore, in the WCS questionnaire, three questions were constructed to evaluate the functional comfort of organisational workspace design from three perspectives, which were: 1) Ease of communication; 2) Ease of supervision; 3) Remote working possibility

4.5.1.4 On-site amenities

The configuration of workspace is not only influenced by functionality, but also by the needs for "humanisation". Thus, amenities have received increasing attention in workspace design and management today as tools to promote employees' well-being and job engagement. But amenities motivating employees might be culturally different.

In the pilot study, respondents reported several types of amenities as things they like, including green plants, toilets, outdoor breakout space such as garden or terrace, indoor breakout space such as smoking area, catering such as kitchens and canteens, fitness and entertainment facilities, libraries.

The influences of the above-mentioned amenities on respondents' overall workspace satisfaction were tested in the WCS survey. Note that, outdoor breakout space outside the office floors such as a shared garden is not included in this term but recognised as part of local amenities.

4.5.1.5 Psychological and aesthetic comfort

The factor comprises three items, namely: 1) sense of belonging; 2) aesthetics of interior design; 3) branding of organisational culture.

Vischer (2008) argued that the *sense of belonging* is an important measure of

environmental success, as it might directly affect employees' commitment to the organisation. It was cultivated by the feeling of territoriality which pertains to the physical boundary of spaces (Davis and Altman, 1976), and the associated social boundary defined through grouping and self-categorising (Mazumdar, 1988). In the literature, sense of belonging has been highlighted as important social needs of Chinese.

In the pilot study, a number of respondents reported aesthetic experience as an important aspect of workspace preference. That is not surprising as the pleasure brought by aesthetics is part of human values (Geertz, 1973). A number of researchers have studied aesthetic as the instrumentality of workspace (Berleant, 1988; Vilnai-Yavetz and Rafaeli, 2012) and believed that "designs that look good work better" (Preiser and Nasar, 2008: p91). It is found that aesthetic design may increase employees' emotional tie to their organisations (Rafaeli and Vilnai-Yavetz, 2004; Norman, 2004) as well as productivity (Kwallek et al., 1988; Dean et al., 1997).

The item *branding of organisational culture* comes from the literature review on the spatial patterns of traditional Chinese administrative buildings. An important feature of traditional Chinese architecture is decorating space with texts to branding governors' values or governing norms. In the pilot study, several respondents mentioned that, cultural symbols such as calligraphic works on the wall as elements that make them feel happy. Thus, it is possible that the tradition of decorating building space to brand organisational values might be still an important preferences of today's office workers.

4.5.1.6 Workstation qualities

Workstations are the immediate space that employees use to perform their daily work. They are the space that is most frequently used by employees at the workplace. In the WCS questionnaire, employees' satisfaction with five aspects of workstation qualities was evaluated.

***Indoor environment qualities**:* Perhaps indoor environment qualities (IEQ) are the most often discussed issues in the research of workspace (Vischer, 2008). It includes indoor ambient conditions near users' workstations such as lighting, temperature, air quality, and noise. Additionally, control over the environment is considered as an important aspect of IEQ too (Wong et al., 2008). IEQ factors can significantly affect users' working experience. For example, Many writers have linked indoor temperature and air quality to the health of employees (Wargocki et al., 2000) and dissatisfaction (Oseland, 2004)

Humphreys (2005), however, argued that satisfaction with one or more IEQ aspects does not necessarily produce satisfaction with the total environment comfort. “Building occupants balance the good features against the bad to reach their overall assessment” (Humphreys, 2005, p317). Therefore, evaluating several environmental aspects separately seems unlikely to reflect the overall merit of buildings (Humphreys, 2005, p317). Analogously, Leaman and Bordass (1999) argued that users’ self-reported productivity correlated strongly with the average comfort of the four IEQ variables and people were more tolerant of environmental conditions when they have more control over the environment. These discoveries imply that it is more appropriate to combine all the IEQ factors into one variable to reflect the respondents’ actual psychological process in workspace evaluation. Therefore, a survey item *indoor environmental quality* was adopted in the WCS questionnaire.

***Furniture comfort**:* The comfort of furniture (primarily desks and chairs) can significantly influence users’ workspace satisfaction too. For instance, Brill et al. (1984) found that workspace satisfaction increased with the improvement of chair comfort. Carlopio and Gardner (1992) stated that ergonomic furniture that is designed to reduce muscular strain of users and adjustable could significantly improve satisfaction with the workspace. Therefore, ergonomic comfort is considered as an important variable in various post-occupancy evaluation survey tools, e.g. the BIU survey (Preiser and Vischer, 2005) and the Koblenz questionnaire (Walden, 2005). The concern of furniture comfort was also identified in the pilot study. Therefore, the measure was added to the WCS questionnaire.

***Space amount**:* In the pilot survey, respondents reported space size or density as a quality affecting their workspace preferences. According to the literature, workstation size could significantly influence spatial users’ environmental satisfaction. For instance, Frontczak et al. (2011) empirically found that amount of space and visual privacy are two of the most important parameters determining employees’ attitude towards their workspace. Brill et al. (2001) found that workspace users with larger workspace tend to be more satisfied than those with smaller workspace. However, Marans and Yan (1989) reported that cognitive spatial size was more important than the objective measurements of space in influencing user satisfaction, because the perception of spaciousness is not only influced by the floor area per person, but also by other factors such as lightness, window, and amount of furniture (Bokharaei and Nasar, 2016) as well as culture (Hall, 1990). It is suggested that diffenent cutltural has different proxemics preference (Hall, 1990) and Chinese office workers are tolerant to high space density at the workplace (Steelcase, 2012). Thus, the item was measured in the WCS questionnaire.

***Access to windows**:* Kaplan (1993) and Farley and Veitch (2001) suggest that a view of a

natural environment may enhance office workers satisfaction. However, the accessibility of view out of window is influenced by floor depth and the relative location of workstations to windows. Cai and Marmot (2013) conducted a study in China and found that satisfaction rates generally increased with closer location to windows and more access to sunshine. The relative importance of view out of windows and natural light seems different across cultures. Van Meel (2000) discovered that organisations in the Netherlands tend to have egalitarian allocation of views and windows to every employee. But in some other cultures like the U.S. deep floor plan is common.

***Personalisation possibility**:* Personalisation is the physical accommodative behaviour that people change unsatisfactory environment to fulfil their needs (Goodrich, 1982) or publicly display personally meaningful items to make sense of personal territory (Marquardt et al., 2002; Brunia and Hartjes-Gosselink, 2009). The possibility of personalising one's workstation is assumed to positively influence workspace satisfaction (Wells, 2000; Brill et al., 1984; Charles et al., 2004). However, according to the literature, user preference for personalisation appears to be significantly influence by their cultural values as well as organisational policies (Brunia and Hartjes-Gosselink, 2009).

While personalisation is important, it was surprising that no respondent mentioned personalisation as a workspace preference in the pilot study. It is possible that personalisation is less valued since secondary control is more important in Eastern culture. To verify this assumption, personalisation was included as a measure in the WCS questionnaire.

***Expression of status**:* Workstation type, size, and furnishing have been widely used to communicate the status of the occupier at the workplace (Marquardt et al., 2002; Vischer, 2005). Status symbols legitimise the power of superiors (Konar et al., 1982). Marquardt et al. (2002) suggested that if a manager feels the spatial privileges he/she deserve are not provided, a sense of loss may happen. But status is not only meaningful for managers, it also help ordinary employees to map the organisational structure and regular their organisational behaviours. For example, status symbols may tell them where the supervisor is and whom they report to.

The relative importance of status symbols at the workplace might be affected by *Power Distance.* For example, Van der Voordt et al. (2003) found that cultures with weaker preference for hierarchy place less emphasis on the expression of status But Plijter et al. (2014) suggested that expression of status also relation to *Masculinity.*

***Privacy**:* The term privacy refers to the control over the visual, acoustic and physical

accessibility of personal space and unwanted interruption (Sundstrom, 1986; Kupritz, 1998; Altman, 1975; O'Neill, 1994). It is influential to the performing of tasks that require concentration and conversations that are confidential (Oldham, 1988). Therefore, privacy is recognised as a critical environmental indicator affecting user satisfaction in the literature (e.g. Sundstrom et al., 1980; O'Neill and Carayon, 1993; Kupritz, 1998a; Brand and Smith, 2005; Veitch et al., 2007; Frontczak et al., 2011). The concern for privacy has been linked to *Individualism versus Collectivism*. For example, researchers found that in some countries where the culture values individualism, such as Germany, privacy is recognised as a "must have" (Steelcase, 2012) while in countries where the culture values collectivism like Japan group integration is emphasised over privacy (Zimring and Peatross, 1997).

4.5.1.7 Property management

The pilot study yielded three items related to property management: 1) cleanliness; 2) maintenance of the buildings; 3) security. In the WCS questionnaire, the former two are merged and investigated through the item: cleanliness and maintenance. Security is excluded in the questionnaire because I consider it as the basic requirement for workspace and less negotiable.

Another issued relating to the service of buildings reported is the pilot study in the waiting time for lifts. Too much time spent for waiting the lifts may negatively affect the willingness of people to interact with colleagues on different floors (Sailer and McCulloh, 2012). Because in China high-rise buildings are prevailing, waiting time of lifts was considered an indicator to measure workspace performance in the WCS questionnaire

4.5.1.8 Overall workspace satisfaction

Overall workspace satisfaction measures the general performance of workspace in regard to the fulfilment of employees' needs, preferences or expectations. Although in the pilot study, respondents tend to describe the general quality of workspace with terms such as "comfortable" or "humanised", these terms reflect more about spatial users' direct sensory experience or subjective feeling about the space. For the research interest in user preferences, overall workspace satisfaction was adopted as the measure of general workspace performance.

4.5.1.9 Measures of national and regional cultures

Comparisons across national or regional cultures has been "vigorously pursued" (Draguns,

2007). Traditionally, when doing research, anthropologists tend to collect rich qualitative data through participant observation. But this approach renders cross-cultural comparison difficult, as it is hard to match date from different case studies. However, Hofstede' framework provides a dimensional and etic approach to measure cultural differences by reducing each culture "to a single data point" (Draguns, 2007) . As such, copious information across a great many national or regional cultures can be compared through a limited number of variables (Draguns, 2007). Following the same consideration, Hofstede's Value Survey Module (VSM) was adopted to meaure national cultures and regional cultures in this research.

But in order to control the survey length, the whole length of VSM questionnaire was not used. Instead, ten Chinese students were asked to pick five questions that can best reflect Hofstede' five cultural dimensions from the VSM 2013 questionnaire. The questions selected most frequently in each dimension were finally incorporated into the WCS questionnare. But for the dimension *Masculine versus Feminine* and the dimension *Individualism versus Collectivism,* there were disagreements amongst the students. Therefore the questions for these two dimensions were redesigned based on Hofstede' interpretation.

To reflect cultural orientations, each dimension was described on a spectrum of opposites. Respondents were required to decide to which extent they agree with one pole. The five surveyed items are:

Power Distance*: Subordinates should never contradict their boss even if their boss is wrong vs. Subordinates are entitled to challenge their boss when their boss is wrong*. The original questionnaire in the VSM 2013 is: in your experience, are subordinates afraid to contradict their boss? (VSM Q24). The stronger a respondent agrees with the wording, a stronger *Power Distance* he / she values.

Uncertainty Avoidance*: An organisation's rules should not be broken – not even when the employee thinks breaking the rule would be in the organisation's best interest vs. An organisation's rules should be broken if it is good for the organisation's interest*. The original questionnaire in the VSM 2013 is: to which extent do you agree that a company's or organisation's rules should not be broken – not even when the employee thinks breaking the rule would be in the organisation's best interest? (VSM Q24). The stronger a respondent agrees with the wording , a stronger *Unvertain Avoidance* tendency he / she has.

Individualism versus Collectivism*: Employees should act in the interest of their group vs. Employees are "economic people" therefore are entitled to pursue individual interest*

preferentially. The question came from Hosfstede (2008, p244): employees are supposed act in the interest of their group vs. employees are supposed to act as "economic people" in the interest of themselves. The stronger a respondent agrees with the wording , a stronger *Individualistist* tendency he / she has.

Masculinity versus Femininity*: Quality of life is more important than career achievement vs. Career achievement is more important than quality of life*. The question came from Hosfstede (2008, p318): "stress on equality, solidarity, and quality of life" vs. "stress on equity, mutual competition, and performance". The stronger a respondent agrees with the wording , a stronger *Masculine* tendency he / she has.

Long-term versus Short-term Orientation: *Persistent efforts are the surest way to success* vs*. getting quick results is more important for success*. The original question in the VSM 2013 is: to what extent do you agree that persistent efforts are the surest way to results? (VSM Q22). The stronger a respondent agrees with the wording , a stronger *Long-term Orientation* tedency he / she has.

While this method might not yield the scores for each cultual dimension that are comparable to Hofstede's cultural index, for the comparison of cultural orientations in this research, it is considered satisfactory.

4.5.1.10 Measures of industrial culture

Herkenhoff (2009) suggested that industrial values could be measured in five dimensions, namely *Power*, *Gender*, *Team*, *Risk* and *Time*. *Power* refers to the extent to which inequality is accepted in an industry; *Gender* refers to the extent to which an industry is prescribed as a world of certain gender; *Team* refers to extent to which an industry emphasises collaboration and collective well-being; *Risk* refers to the extent to which uncertainty and risks are accepted by people in an industry; *Time* refers to the extent people in an industry is long-term oriented. The five dimensions is close to Hostede's model.

Because of the similarity, in the WCS questionaire, the five questions measuring Hofstede's five cultural dimensions are also used to measure respondents' industrial values. *Power* is measured by the same question measuring *Power Distance*, *Gender* is measured by the same question measuring *Masculinity versus Femininity, Team* is measured by the same question measuring *Individualism versus Collectivism, Risk* is measured by the same question measuring *Unvertainty Avoidance, and Time* is measured by the same question measuring *Long-term Orientation versus Short-term Orientation*,

4.5.1.11 Measures of organisational culture

In this research, the Organisational Culture Assessment Instrument (OCAI) (Cameron and Quinn, 2006) was adopted to measure the organisational culture of the case studies. Unlike other qualitative methods such as Deal and Kennedy's (1982) cultural typologies, it quantititively measures the characteristics of organisational culture, which allows advanced statistic analysis.

Again, considering the length of the WCS questionnaire and the research depth, the whole length of OCAI was not used. The OCAI questionnaire measures organisational cultures with six aspects: 1) dominant characteristics, 2) leadership, 3) management of employees, 4) organisational glue, 5) strategic emphasis and 6) criteria of success. But in this research, only the dominant cultural characteristics of organisations were evaluated. The original OCAI survey requires respondents to rate "current" and "preferred" organisational cultures, but as this research focuses on the perceived organisational culture, simply measuring current organisational culture is considered sufficient in the WCS. The WCS questionnaire measures the dominant characteristics of organisational culture by asking respondents to which extent, do you agree with the following statements:

1) ***Clan*****:** My organisation is a very personal place. It is like an extended family. People seem to share a lot of themselves.

2) ***Adhocracy*****:** The organisation is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.

3) ***Market*****:** The organisation is very results-oriented. People are very competitive and achievement-oriented.

4) ***Hierarchy*****:** The organisation is a very controlled and structured place. Formal procedures generally govern what people do.

4.5.1.12 Demographic features

Hofstede (2008) indicated that country, occupation, gender and age are the main criteria responsible for group differences in cross-cultural study. These demographic characteristics also have a significant influence on workspace satisfaction and preferences (Pullen, 2014; Dinç, 2009; Rothe and Nenonen, 2011). In order to compare the relative importance of these demographic characteristics, information about respondents' gender, age, city, cultural background (migrant or aboriginal) and industry were collected in the WCS (version 2015).

Here, the questionnaire uses the terms migrant or aboriginal rather than simply distinguishing hometown is because domestic migration is China in quite common and many people are born and grew up in different cities from their parents.

Following the classification of Sun and Wang (2010), four age groups were defined corresponding to four different historical periods of China since 1949: 1) people aged over 50 are the generation of the Great Leap Forward born before the Cultural Revolution, 2) people aged between 36- 50 are the generation of the Cultural Revolution (1966-1976), 3) people aged between 26- 35 are the generation of "the beginning of economic reform" born in the 1980s, and 4) finally those aged below 26 are the generation of "the societal transition" born after 1990.

Industrial sectors were categorised based on China labour statistics (National Bureau of Statistics of China and Ministry of Human Resource and Social Security, 2013). They were: 1) Science and professional services, 2) Real estate, 3) Finance and insurance, 4) Manufacturing, 5) Education and media, 6) Government agencies, and 7) others.

The migration background was also recorded in the WCS questionnaire since there has been a massive migration wave in China. The migration background of respondents is categorised as: 1) Indigenous people; 2) Migrants living in the city over 10 years; 3) Migrants living in the city for 5- 10 years; 2) Migrants living in the city for less than 5 years.

4.5.1.13 Office type

In addition to demographic characteristics, Been and Beijer (2014) discovered that individuals' office types may also influence workspace satisfaction. Thus, workspace satisfaction was added to the WCS as a covariant variable. Offices were categorised into four types based on the number of people working within the room, which were: 1) cellular office occupied by one person, 2) office shared by two to six persons, 3) open-plan office shared by over six persons, 4) working remotely without fixed office.

4.5.1.14 Factors excluded in the survey

Information and communication technologies (ICTs) were left out from the WCS questionnaire, simply because the availability of ICTs in the workplace now is viewed as a basic need indispensable for most office work today (Lasrado and Bagchi, 2011).

Similarly, safety and security were omitted too as they are recognised as basic environmental conditions that workspace should meet. Another factor reported by the

respondents but purposely omitted in the WCS questionnaire is interpersonal relationships and atmosphere which were considered not to be a design concern.

Fenshui was also excluded in the survey for the lime limitation to understand its complexity despite its importance in traditional Chinese culture. In the future research, its influence on Chinese workspace design and management would be systematically examined.

4.5.2 Scale of measurement

In the WCS questionnaire, the satisfaction with various workspace items was measured with a five-point Likert scale ranging from very dissatisfied (1) to very satisfied (5). For items in the category of *Amenities,* a sixth point "NA" (not available) was provided. Workspace items with an average satisfaction rating lower than 2.5 were considered as unsatisfactory factors and those with an average satisfaction rating higher than 3.5 were considered as satisfactory factors.

Organisational culture characteristics were also measured with similar five-point scales ratings. The strength of a cultural characteristic was defined as: weak or very weak (average rating < 2.5), medium (average rating = 2.5 to 3.5) and strong or very strong (average rating > 3.5).

However, to reflect opposite cultural orientations, the individuals' cultural values are measured with a five-point Likert scale but ranging from -2 to 2. For example, for *Masculinity* (MAS), a rating of -2 represents a very strong feminine tendency while a rating of 2 represents a very strong masculine tendency. Ratings falling in the range between -0.75 and 0.75 suggest that the cultural orientation is neutral or medium strong in the dimension.

4.5.3 Translation of the questionnaire

The questionnaire was originally developed in Chinese based on the results of the pilot study. This avoids the distortion of original Chinese meaning in the translation process. The questionnaire was then translated into English and a Chinese professional translator was invited to translate the English version back to Chinese to verify the English translation.

4.6 The development of WCS Space Coding Sheet

Apart from the questionnaire survey, the eight offices selected as case studies were visited in person by the researcher. The main purpose was to observe the relationship between

organisational culture and workspace characteristics. Based on the literature review in Section 2.5.2, a WCS Space Coding Sheet was designed to record the following workspace characteristics. The coding sheet is presented in Appendix V.

Location. Location reflects the how an organisation considers issues such as the proximity to clients and branding of organisational images (Van der Voordt, et al. 2003). In the study, the locations of organisations' office buildings were recorded as one of four types:

1) CBD or business centre;
2) Industrial parks;
3) Other city area close to clients;
4) Other city area for other considerations.

Accessibility. The accessibility of office site was coded based on availably of public transportation. It was recorded as:

1) Car only;
2) City bus or company shuttle bus;
3) Bus & subway;

Building. In the present study, five types of office building were distinguished:

1) Prestigious building;
2) Class-A office building;
3) Class-B office building;
4) Low-end office building;
5) Non-office building.

Layout. the characteristics of office layout were coded in the follow aspects:

A. Net interior area of the visited floor;
B. Planned number of desks on the visited floor;
C. Net interior area per desk;
D. Proportion of different types of space including enclosed rooms (shared by up to six persons), open-plan working area and supporting area;
E. Office type. Three types of office based on the spatial configuration were distinguished:

    1) Corridor office with most employees accommodated with private rooms or rooms shared by up to six employees;
    2) Open-plan office with a number of cellular rooms for managers alongside the open-

plan working area.

3) Offices that are mainly open-plan with a limited number of cellular rooms for top managers at segregated area.

F. Place of management. The places of managers at different levels of the organisational hierarchy were recorded as:

1) Close to employees;
2) Separate from employee.

G. Visual accessibility of managers. The item records the intensity of visual supervision. It was recorded as:

1) Not available: the direct visual connection between managers and their subordinates is impeded by walls or partitions.
2) Available: managers can see their subordinates from the workstations directly.

H. Status symbol. The expression of status was measured in two aspects:

a. Access to windows:

1) Supervisors have the priority: office users that are in higher positions have the priority to access windows.
2) Ordinary employees have the priority: most managers are arranged in the inner dark area while employees are arranged close to windows.
3) Everyone can access windows equally: distance to windows does not reflect employees' status in the organisation.

b. Workspace area per desk for employees at different levels of the organisational hierarchy.

I. Place of meeting rooms, coded as:

1) Close to workstations;
2) Separated from working area but on the same floor;
3) On other floors;
4) Having no meeting room in the office

Interior decoration. interior decoration relates to the narrative and aesthetic aspects of workspace design. Two aspects form the main focus.

A. Expression of organisational identity, recorded as:

1) Neutral: no organisational symbols;
2) Perceivable: limited use of organisational symbols;
3) Distinctive: intensive use of organisational symbols.

B. Colours. Following Van der Voordt et al. (2003), The colours of interior design were also coded as:

1) Cool;
2) Vivid;
3) Warm;
4) Neutral.

On-site amenities. Amenities in the office were coded as:

1) Breakout space (including lounge, smoking rooms, rest rooms or outdoor breakout space);
2) Catering (including kitchen, tea rooms, café);
3) Canteen;
4) Fitness facilities;
5) Library;
6) Shower rooms;
7) Nursing rooms.

Three-point scales (1. not available; 2. Available; 3. Good) were used to describe their availabilities.

Workstation. the characteristics of main type of workstations were coded as:

A. Shape:

1) “L” shape;
2) Rectangular;
3) Other shapes

B. Enclosure level:

1) No partition;
2) Partition in the front only;
3) Partition along the two arms of “L” shape;

4) Partition in the front, left and right.

C. Partition height:

1) No partition
2) Low: <1.2m;
3) Median high: 1.2m-1.4m
4) High: >1.4m

D. Personalisation. Following Dinç (2009), types of personalisation were coded as:

1) Photos of family members, friends or pets;
2) Artworks including paintings, posters or cartoons;
3) Trinkets like presents, toys or dolls;
4) Plants;
5) Gadgets like a small fan or extra heater;
6) Self-care items like mugs or towel;
7) Merit: trophies or certifies showing personal achievement;
8) Work accessories such as calendars, baskets and penholders.

A dichotomous scale (yes/ not) was used to describe whether the above personalisation behaviours have happened. In each office, 20 desks were selected and coded. The method of selecting the desks is simply choosing the first desk and the second desk of each row from the corridor.

4.7 Fieldwork

4.7.1 Phase 1

The fieldwork was conducted in two phases. At the first phase, a adapted version of WCS questionnaire excluding organisational culture measurements was used to collect data both online and off-line. It was conducted in the summer of 2014:

1) Online survey. The WCS questionnaire was uploaded to an online survey platform called WJX (www.wjx.com). The link of the survey was sent to Chinese office workers known to the researcher through email and instant message apps. They were invited to fill the survey and then asked to push the link to their colleagues. 347 respondents finished the survey.

2) Off-line survey. Paper based questionnaires were distributed in a landscape architecture company and two IT companies in Guangzhou, a fashion design company with branch offices in Guangzhou and Shanghai. 207 finished questionnaires were returned to the researcher (118 copies from the landscape architecture company, 67 copies from the fashion design company, 22 copies from the two IT companies).

Questionnaires with over 3/4 questions marked with the same answer or over 5 questions unanswered were considered as invalid. Finally, 548 questionnaires were put into further data treatment (139 from Shanghai, 253 from Guangzhou and 156 from another five cities including Beijing, Hangzhou, Xiamen, Shenzhen, and Fuzhou)

4.7.2 Phase 2

The second phase of the fieldwork was conducted in the selected eight offices, four each in Shanghai and Guangzhou. Multiple methodologies were used to collect data in the case studies. Questionnaire survey, site-visiting, floor-plan analysis, coding of spatial artefacts and interviews were conducted.

Due to the strict Public Relation (PR) policy of these companies, the researcher was not allowed to directly send the online survey link to their employees. Therefore, all the questionnaires were distributed and collected by the human resource (HR) or PR officers of these companies in the form of paper-based questionnaires. Because the AA-SH office and JJ-SH office are their Asian headquarter offices and both companies had a concern that the survey may result in employees' complaints, the surveys in these two offices were limited to their administrative departments. Table 4.5 shows the number of employees in surveyed business unit and the response rate. Table 4.6 summarises the demographic characteristics of all respondents in the two phases of fieldwork.

Table 4.5 Response rate of fieldwork phase 2

Company	AA		JJ		TT		FF		All		Total
City	SH	GZ	SH	GZ	SH	GZ	SH	GZ	SH	GZ	
No. employees	28*	120	42*	52	20	105	120	185	210	467	677
No. respondents	20	42	29	27	13	37	48	70	110	176	286
Response rate (%)	71.4	35.0	69.0	51.9	62.5	35.2	40.0	37.8	52.3	37.7	42.2

Note: * Administrative departments participated in this survey only

Table 4.6 Demographic characteristic of samples collected in different phases of fieldwork

		Phase 1	Phase 2								Total Phase 1& 2
			AASH	AAGZ	JJSH	JJGZ	TTSH	TTGZ	FFSH	FFGZ	Total	
Sample size		548	20	42	29	27	13	37	48	70	286	834
Gender	Male (%)	48.7	35.0	47.6	30.7	40.7	92.3	43.2	56.3	61.4	50.7	49.4
	Female (%)	51.3	65.0	52.4	70.3	59.3	7.7	43.2	39.6	38.6	47.0	49.8
	Missing (%)							13.6	4.1		2.3	0.08
Age	<26 (%)	21.2	10	9.5	31.0	37.0	46.2	51.4	25.0	30	29.0	23.9
	26-35 (%)	55.3	70	57.2	55.2	44.4	53.8	45.9	68.8	68.6	59.8	56.8
	36-50 (%)	21.9	20	33.3	13.8	18.6		2.7	6.2	1.4	11.2	18.2
	>50 (%)	1.6										1.1
City	Shanghai (%)	25.4	100		100		100		100		38.5	29.9
	Guangzhou (%)	46.2		100		100		100		100	61.5	51.5
	Other cities (%)	28.5										18.7
Migration	Aboriginal (%)	26.5	65.0	35.7	31.0	18.5		24.3	25	31.4	29.7	27.6
	Migrants (%)	73.5	35.0	64.3	69.0	81.5	100	75.7	75	68.6	70.3	72.4
Industry	1. Professional service (%)	39.8					100	100	100	100	58.7	46.3
	2. Real estate (%)	14.8										9.7
	3. Finance and insurance (%)	3.6										2.4
	4. Manufacturing (%)	13.9	100	100	100	100					41.3	23.3
	5. Education and media (%)	9.7										6.4
	6. Government agencies (%)	7.8										5.1
	7. Others (%)	10.5										6.9
Office type	1. Private office (%)	8.2		4.8				2.7	6.3	2.9	2.8	6.4
	2. Shared office (2 - 6 persons) (%)	22.3		9.5	17.2	14.8	100	10.8	16.7	8.6	15.4	19.9
	3. Open-plan office (>6 persons) (%)	69.5	100	85.7	82.8	77.8		86.5	72.9	87.1	80.1	73.1
	4. Do not have fixed office (%)					7.4			4.1	1.4	1.7	0.6

Site visits to the eight offices were also conducted by the researcher in phase 2, though which data about the office design such as colours, type of desks and layout, as well as personalisation of workstations were collected through the WCS Space Coding Sheet. During the site visits, the HR or PR manager of each offices was interviewed informally. The interviews aimed to collect as much information about the organisations' policy and daily operation of space as possible.

4.8 Date Screening and data treatment

4.8.1 Missing values and outliers

Multiple ways were used to handle missing data. In regard to the demographic characteristics and workspace types of respondents, missing values were replaced with the code 999. In regard to workspace items and cultural items, all cases with over 5 questions unanswered were not included in the analysis. The missing values in the remaining cases were replaced by the mean value of the variable. A similar method was also adopted by Scott (2015) when analysing the cultural influence on workspace well-being in the U.S.

Descriptive statistics were run on the entire workspace variable. Any maximum value higher than 5 and minimum value lower than 0 were consider as outliers. The analysis did not find any outliers in the dataset, therefore no further data treatment was taken.

4.8.2 Variable transformation

According to the literature review, *forgiveness* is important measurement of the combining effect of the organisational culture and the workspace. However, it could not be measured through questionnaire survey directly. In the surveys, It was computed based on the collected data by dividing the mean values of overall workspace satisfaction with the mean of all survey variables (Leaman, 1995). The equation is：

$$\text{Forgiveness} = S_{OWS} / \left(\frac{\sum_n^1 S_j}{n}\right) \qquad \text{Equation 2}$$

S_{ows} is overall workspace satisfaction; S_j is the satisfaction with workspace variable j (j=1 to n).

4.9 Construct validity and reliability of the WCS questionnaire

Principal component analysis (PCA) was used to test the psychometric quality of the scales used in the questionnaire. It identified the numbers and properties of dimensions contained in the measurement. Based on the data collected in the two phases of fieldwork, the 25 workspace items show in Table 4.7 were analysed. The results yielded six components with an eigenvalue higher than 1.0 and factor loadings higher than 0.4 (Table 4.7).

The first component comprises the original factors of "psychological comfort", as well as two psychologically-related items regarding building location and appearance and two items relating to "amenities" (green plants and breakout space). It is no surprise to find breakout space and green plants fall in the category because they are often considered as elements to humanise the work environment. Collectively, these workspace elements are related to the social environment of workplace therefore the component was labelled as *Social environment*.

The second component replicated the original factor "Workstation" in the WCS questionnaire and was "*Workstation qualities*".

The third component replicated the factor "*Property management*" with the amenities item "toilet" included.

The fourth component relates to amenities in the workplace, thus was labelled as "*Amenities*".

The fifth component relates to the location of buildings regarding accessibility and provision of local amenities and thus was labelled as "*Location*".

Finally, the sixth component replicates the original factor "*Functional comfort*".

The six components had a Cronbach's α coefficient higher than 0.80 indicating that the internal consistency is high. The Cronbach's α coefficient of national / regional cultural and organisational culture scales are 0.724 and 0.576 respectively. The latter is low but acceptable. The first version (used in fieldwork phase 1) and the second version (used in fieldwork phase 2) of the whole WCS questionnaire have a Cronbach's α coefficient of 0.876 and 0.846 respectively, indicating that the scales have high internal consistency.

Table 4.7 Principal component analysis (PCA) for workspace related items

	Components						Cronbach's α	n
	1	2	3	4	5	6		
Social environment							.863	824
SO1. Location reflecting organisational power	0.655							
SO2. Building appearance	0.717							
SO3. Sense of belonging	0.633							
SO4. Aesthetics of Interior design	0.601							
SO5. Branding of organisational culture	0.510							
SO6. Green plants	0.570							
SO7. Breakout space	0.487							
Workstation							.840	826
WS1. IEQ		0.532						
WS2. Furniture comfort		0.627						
WS3. Space amount		0.774						
WS4. View out of windows		0.534						
WS5. Personalisation		0.525						
WS6. Privacy		0.683						
WS7. Expression of status		0.717						
Property management							.761	829
PM1. Cleanliness and maintenance			0.724					
PM2. Waiting time for lifts			0.768					
PM3. Toilet			0.609					
On-site Amenities							0.669	813
AM1. Fitness				0.728				
AM2. Catering				0.740				
AM3. Library				0.715				
Location							0.776	832
LO1. Local amenities					0.829			
LO2.Transportation					0.864			
Functional comfort							.732	817
FC1. Ease of communication						0.660		
FC2. Ease of supervision						0.601		
FC3. Remote working possibility						0.760		

4.10 Discussion

This research is neither a technical study of office buildings, nor a theoretical study of Chinese culture per se. Rather, it addresses the practical concern of trying to understand how different levels of culture interactively influence Chinese employees' workspace preferences and experience and affect the employee- accommodation relationship. It deals with real world issues.

Yet, the real world is never as neat as a carefully designed laboratory experiment. Methodological opportunism and pragmatism are two key considerations of research design. Luck and chance are important in determining the direction of the research. Because of this, the data collection of this study is based on convenience samples. The researcher acknowledged that the results might be affected by contingent factors. To avoid the influence as much as possible, the research thus was carefully designed.

This Chapter has outlined the methodologies used in the research. Questionnaires and space-coding sheets were used as the main tools to collect data. These methodologies enable cultures and workspace characteristics to be compared quantitatively and the correlations between spatial variables and cultural variables to be tested statistically to suggest the influences of different levels of culture on workspace design and management, using solid evidence. The next two chapters will further specify how these methodologies have been used to investigate the influences of cultures on Chinese employees' workspace preferences, workspace cognition and workspace accommodative behaviours through two separate studies.

Comparing to methodologies such as participant observation, a limitation of the research approach is it might potentially omit some important information about the desire or preferences for workspace. To reduce the risk, information about traditional environmental beliefs and ancient workspace design have been gathered as much as was possible through the literature review. However, not all aspects of workspace design in China could be addressed. Therefore, other qualitative methodologies such as interviews and site visits were also adopted in the research to collect contextual information to overcome some of the limitations.

5 Study 1: Unpacking national, regional and industrial effects

5.1 Research aims and research questions

In Chapter 1, it was suggested that the accommodative process of employees in the workplace are affected by two factors: 1) pre-organisational experience; 2) the organisational environment. Office workers' initial workspace preferences, cognitive patterns and accommodative tendency, to a large extent, are cultivated by their national culture, regional culture and industrial culture, which form their cultural backgrounds before joining an organisation, while the organisational environment affects their actual accommodative behaviours at the workplace. Thus, understanding what employees like and dislike, how they perceive and evaluate their workspace are affected by their cultural backgrounds before taking into account any organisational effects is of critical importance for workspace design and management.

Because of this, this study focused on Chinese office workers' pre-organisational experience with two research aims. The first was to examine the influence of Chinese culture on employees' workspace preferences and workspace cognition (in particular, their workspace satisfaction and forgiveness), and the second was to investigate how the national effect is flexed by regional and industrial differences. Therefore, the following questions are addressed in this study:

1) What are the main features of Chinese office workers' workspace preferences and workspace cognition patterns? And how do these features relate to the national culture?

2) Are there significant differences in office workers' workspace satisfactions, forgiveness, and preferences between cities and between industries?

However, according to the literature, workspace preferences and cognition are also influenced by users' personal traits such as age, gender and industry (Rothe et al., 2012; Langston et al., 2008). To understand the significance of cultural issues on workspace design, the relative importance of all these demographic variables is addressed by this study too.

5.2 Methodologies

5.2.1 Samples

The data analysis covered data draw from the samples collected in the two phases of fieldwork. The total sample size was 834. The demographic features of the samples are described in Table 4.6. All respondents were office workers.

In the analysis of regional difference, all respondents were divided into three groups based on their cities: Shanghai (n=249), Guangzhou (n=429), and other cities (n=156).

Similarly, in the analysis of industrial differences, all respondents were divided into three groups, which were: Industry 1 -- professional services (n=391), Industry 4 -- manufacturing (n=189), and other industries (n=254).

5.2.2 Data analysis

5.2.2.1 Measure cultural orientations, workspace satisfaction and forgiveness

In the analysis of cultural values and trends of workspace satisfaction and forgiveness, mean values of each measured items were computed to represent the value orientations and workspace cognition characteristics of respondents. Forgiveness were computed based on Equation 2 (see page 110)

5.2.2.2 Identify workspace preferences

In this research, workspace preferences were conceptualised as workspace factors that contribute to user's workspace satisfaction. Multiple-linear regression analysis was conducted to identify workspace variables that significantly contribute to employees' overall workspace satisfaction at national levels as well as within different regional and industrial settings. The method was also used by Humphreys (2005), Lee (2006) and Bluyssen et al. (2011).

To avoid the influence of multicollinearity, the analysis was performed by two steps. First, regression was performed with the six principal components (regression method: enter). The results allowed comparison of the relative importance of different workspace components in different setting. After that, stepwise regression analysis was conducted for the 25 workspace variables to identify the strongest predictors of overall workspace

satisfaction. The reason for including the first step is that the coefficients for a variable in different stepwise regression models are incomparable because the combination of predictors have changed.

Assumptions of regression analysis were checked for each analysis and tests for normality, linearity, and homoscedasticity of residuals were included. The results did not indicate a deviation from the assumption of normal distribution.

5.2.2.3 Distinguish the effects of demographics characteristics and cultural values

To examine the relative importance of respondents' cultural values, demographic characteristics and workspace characteristics in shaping their workspace satisfaction, hierarchical regression analysis was conducted. The six workspace components as well as overall workspace satisfaction and forgiveness were analysed as dependent variables. Demographic characteristics including gender, age, city, migration and industry as well as office type were used as covariates and put into analysis in the initial regression analysis. After that, cultural values were added to the model in the second regression analysis.

If a demographic variable is identified as an influencer for a workspace factor, then its regression weight on the outcome should be significant both before and after adding cultural values as predictors. Otherwise, cultural values might have a stronger effect.

5.2.2.4 Identify regional and industrial differences

Visual and numerical inspection of the data showed that most variables were negatively skewed to a moderate extent. Thus Kruskal-Wallis H test was used to explore whether there is significant difference in the mean ranking of satisfactions with the six components amongst different regional and industrial settings. This allowed grasp of a big picture about which aspects workspace satisfaction could vary across regions and industries. Then Mann-Whitney U tests were employed to further explain the differences in workspace satisfaction between any two groups.

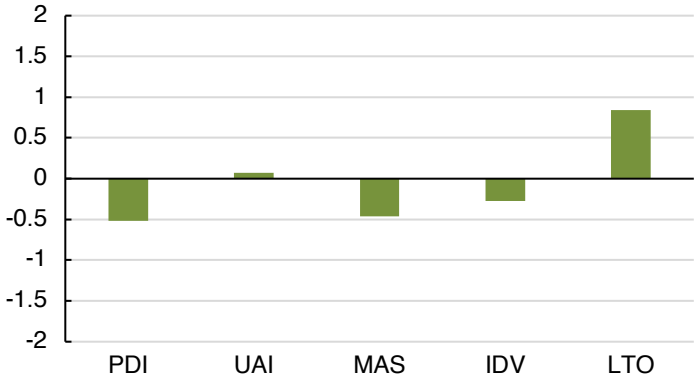
5.2.2.5 Comparison of employee likes and dislikes

In addition to quantitative analysis, the answers of two open-ended questions in the WCS questionnaire were coded following the coding sheet developed in the pilot study. The frequencies that a workspace element was mentioned as liked and disliked workspace features were compared between regional groups and industrial groups.

5.3 Research findings

5.3.1 The national culture

The mean scores of the five cultural dimensions shows that the respondents' culture was strong in *Long-term Orientation* but medium in the other four cultural dimensions (Figure 5.1). This result differs from Hofstede's cultural index in which the Chinese culture is described as strong in *Power Distance* and *Masculinity* but weak in *Uncertainty Avoidance* and *Individualism* (The Hofstede Centre, 2016). However, the strong Long-term Orientation is consistent with the literature.



Value scores (n=834)		
	Mean	SD
PDI	-0.52	1.043
UAI	0.07	1.058
MAS	-0.46	1.005
IDV	-0.27	1.116
LTO	0.84	0.889

Note: PDI = power distance index, UAI = uncertainty avoidance index,
MAS= masculinity index, IDV = individualism index, LTO = long-term orientation index

Figure 5.1 Cultural orientations of respondents

5.3.2 The national trend of workspace satisfaction and forgiveness

Figure 5.2 shows the mean scores of workspace satisfaction for different measured workspace items. It illustrates that respondents in general held a neutral attitude towards most workspace items. For three variables respondents were satisfied, namely branding of organisational culture, ease of supervisor and space amount of workstations. The only unsatisfactory item was the availability of fitness facilities.

The mean score of forgiveness was 1.08, which suggest that the respondents were tolerant of the shortcomings of their work environment.

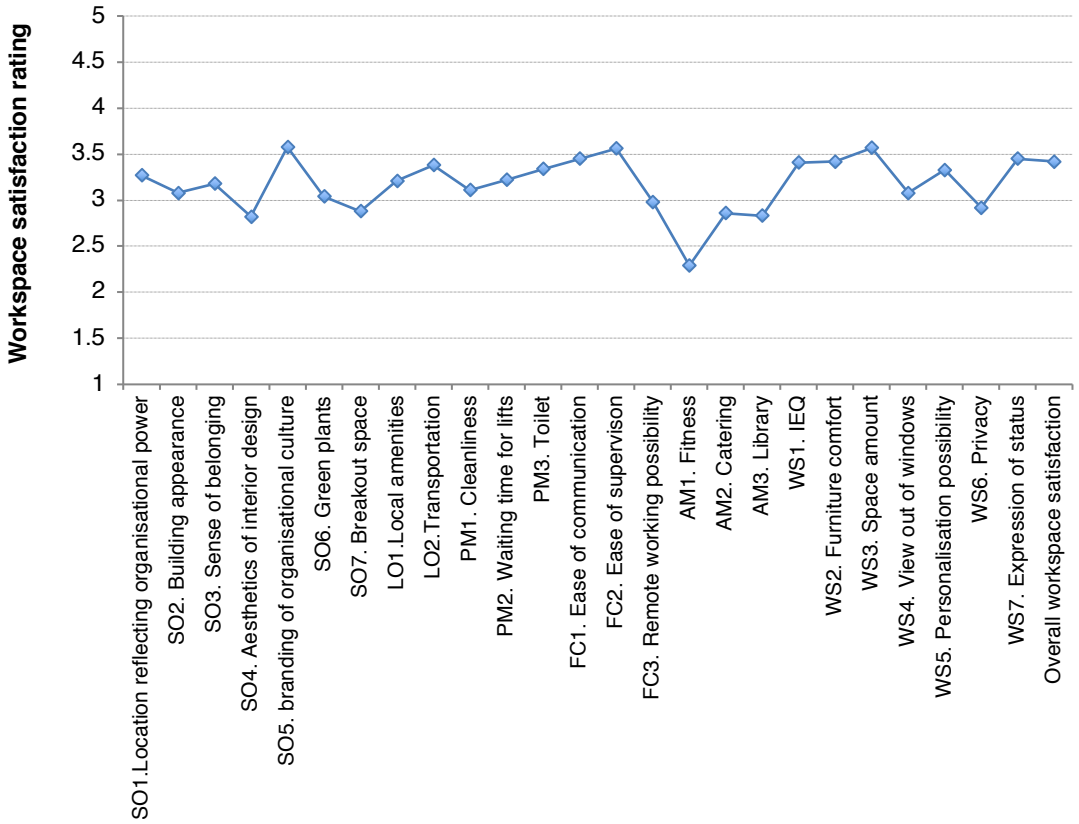


Figure 5.2 Respondents' workspace satisfaction (n=834)

5.3.3 The national trend of workspace preferences

Result of multiple-linear regression analysis

The six workspace components were entered into regression models to analyse their influences on over workspace satisfaction and forgiveness (Table 5.1). The results show that *Workstation quality* (β=0.455) and *Social environment* (β=0.428) have the strongest influence on overall workspace satisfaction. The influence of *Property management, Location, Amenities* and *Functional comfort* was significant too but weaker. Forgiveness appeared to have strongest correlation with *Proper*ty *management* and *Amenities*. But in general, the percentage of variation explained in the two models was low.

Table 5.1 Variation of overall workspace satisfaction and forgiveness explained by six workspace components (n=834)

Workspace components	Overall workspace satisfaction		Forgiveness	
	β^a	Variation explained (%)	β^a	Variation explained (%)
Social environment	.428***	.212	-.116***	.066
Workstation quality	.455***	.170	.087***	.061
Property management	.185***	.044	-.257**	.025
Amenities	.214***	.042	-.248***	.013
Location	.120***	.016	-.157***	.008
Functional comfort	.103***	.007	-.074*	.006
R^2		.491***		.179***

Note: *p<0.05, **p<0.01, ***P<0.001. β: Standardised regression coefficient.
Regression method: [a] Enter, [b] Stepwise.

Table 5.2 Regression coefficients for overall workspace satisfaction and forgiveness with detailed workspace variables (n=834)

Workspace variables	Standardised regression coefficient β^b	
	Overall workspace satisfaction	Forgiveness
SO1. Location reflecting organisational power		-0.208*
SO2. Building appearance	.089**	0.202*
SO3. Sense of belonging	.174***	
SO4. Aesthetics of interior design	.105**	
SO5. Branding of organisational culture	.062*	
SO6. Green plants		-0.225*
FC1. Ease of supervision	.073**	
AM2. Catering	.068*	-0.304***
WS1. Indoor climate	.117***	
WS2. Furniture comfort	.074*	0.365***
WS3. Space amount	.176***	
WS4. View out of window	.064*	
WS5. Personalisation possibility		-0.187*
WS7. Expression of Status	.096**	
Variation explained R^2	.504***	

Note: *p<0.05, **p<0.01, ***P<0.001. Regression method: [a] Enter, [b] Stepwise.
All insignificant coefficients are omitted.

Stepwise regression was used to further identify variables that can predict Chinese employees' overall workspace satisfaction and forgiveness (Table 5.2). The result yielded 11 workspace variables that might be used to predict overall workspace satisfaction. Space

amount of workstations had the highest regression coefficient. It was followed by sense of belonging. After them are aesthetics of interior design and IEQ. The influence of building appearance, expression of status, ease of supervision, furniture comfort, branding of organisational culture, catering and view out of windows were significant too but relatively lower. Among all these predictors, four of them are related to the *Social environment* of workspace and five is related to the qualities of workstations. Forgiveness appeared to be positively associated with furniture comfort and building appearance, but negatively with catering, location, green plants and personalisation possibility.

User likes and dislikes

The answers of the two open-ended questions were coded following the coding sheet developed in the pilot study. The top 15 likes and dislikes reported by the respondents are listed in Table 5.3. The result shows that good atmosphere, interpersonal relationships and space amount appeared to be the greatest contributors to user satisfaction. They were followed by openness and communication, brightness and the amount of green plants. The result is consistent with the findings of regression analysis and suggests the important influence of the social-psychological environment on Chinese white-collar workers.

Table 5.3 Top 15 liked and disliked workspace characteristics (% of respondents)

Likes	% (n=834)	Dislikes	% (n=834)
Interpersonal relationship & atmosphere	6.60	Space amount	8.76
Space amount	6.00	Air quality	6.72
Openness and communication	5.16	Privacy	5.04
Brightness	5.04	AC and temperature	4.56
Green plants	3.84	Aesthetics of interior design	3.84
Aesthetics of interior design	3.60	Cleanliness	2.88
Accessibility of the building	3.00	ICTs	2.76
Privacy	2.52	Breakout space	2.64
Cleanliness	2.28	Noise	2.28
Catering	1.80	Toilet	1.68
ICTs	1.68	Availability of meeting rooms	1.32
Views out of windows	1.56	Transportation	1.20
Breakout space	1.44	Green plants	1.08
Subdivision of space	1.32	Views out of windows	0.96
Cultural symbols (logos, pictures)	1.20	Subdivision of space	0.84

In the list of dislikes, space amount was ranked on the top. It was followed by air quality, privacy, temperature and aesthetics of interior design. In general, what made respondents unhappy were related to physiological comfort and function comfort. It is also interesting to found that some items such as air quality, thermal comfort and noise appeared only in the list of dislikes. They primarily caused the dissatisfaction of respondents, therefore could be recognised as “hygiene factors” according to the two-factor motivation theory (Herzberg et al., 1959).

5.3.4 The relative importance of culture and demographic characteristics

Hierarchical regression models were employed to analyse the relative importance of respondents’ demographic characteristics and cultural values on workspace satisfaction and forgiveness. Statistical models were established for the six principal workspace components, overall workspace satisfaction, forgiveness and job satisfaction respectively. The outcomes are summarised in Table 5.4 and Table 5.5.

Social environment. The model shows respondents’ satisfaction with the *Social environment* was significantly influenced by their age, city and industry. But the explained variance was low. When adding cultural values as explanatory variables, the influence of industrial difference became insignificant while the explained variance in the model increased significantly. This suggests that the perception of social environment in the workplace is primarily influenced by social values pertaining to regional and age differences. *Individualism* had the strongest correlation (β=0.208, p<0.001) in the second model. The influence of Long-term orientation and Uncertainty Avoidanc*e* were significant too.

Workstation quality. The initial regression model shows that the satisfaction with workstation was significantly influenced by age and office type. In particular, the negative regression coefficients suggest elder respondents working in open-plan office tended to be less satisfied. The explained variance was low but doubled after adding cultural values as explanatory variables. it seems that respondents with weaker PDI and IDV or stronger UAI and LOT values were more satisfied. This concurs with the literature that, PDI and IDV could influence the desire for status symbols and privacy while strong UAI and LTO might result in an emphasis on job security and thus tolerance for current deficiencies.

Property management. The result of the initial regression suggests that respondents’ satisfaction with *Property management* was significantly influenced by gender and office type. But the explained variance was low. After adding cultural values as explanatory variables, the effect of workstation type became insignificant while the explained variance

in the model increased by three times. This suggests that the factor is primarily influenced by the cultural differences in regard to *Individualism* and *Long-term orientation.* It seems tha*t* respondents with stronger IDV and LTO were more satisfied with the component in the study.

Location. Regression results show satisfaction with office location could be explained by regional differences and *Uncertainty Avoidance.* However, the explained variance in the two regressions on the factor was very low.

Table 5.4 Hierarchical regression analysis: the relative importance of various demographic characteristics and cultural values on workspace satisfaction (n=834)

	Standardised regression coefficient β					
	Social environment	Workstation quality	Property Management	Amenities	Location	Functional comfort
Block 1						
Gender	-.016	-.008	.086*	-.017	.013	-0.019
Age	.118**	-.097**	.067	-.026	-.040	0.036
Region	.177***	.050	.047	.035	-.083*	0.045
Migration	-.020	.032	.056	-.006	-.036	-0.053
Office type	.035	-.172**	.085*	-.047	-.075	0.035
Industry	-.073*	.066	-.062	.032	-.002	0.073*
R2	.051***	.038***	.026***	0.004	0.016*	0.012
Block 2						
Gender	.001	.000	.096**	-.013	.026	-0.026
Age	.113**	-.082*	.052	-.017	-.041	0.025
Regions	.138***	.065	.007	.041	-.095*	0.018
Migration	-.009	.025	.070*	-.014	-.031	-0.049
Office type	.030	-.139**	.056	-.006	-.069	0.017
Industry	-.066	.045	-.043	.007	-.007	0.087*
PDI	-.068	-.106**	.011	.051	-.030	0.112**
UAI	.110*	.088*	-.016	.122**	.079*	-0.041
MAS	-.001	.041	.058	-.016	.032	-0.051
IDV	.208**	-.108*	.189**	-.176**	.014	0.116**
LTO	.188**	.077*	.086**	.046	.054	0.049
R^2	.125***	.084***	.076***	0.057***	0.027*	0.041***
ΔR^2	.074	.046	.05	0.053	0.009	0.039

Note: *p < 0.05; **p < 0.01; ***p < 0.001. Regression method: Enter.
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS= Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index
R^2: Variation explained by the regression model

Table 5.5 Hierarchical regression analysis: the relative importance of various demographic characteristics and cultural values on overall workspace satisfaction and forgiveness

	Standardised regression coefficient β (n=834)	
	Overall workspace satisfaction	Forgiveness
Gender	.019	-.015
Age	-.031	-.073*
Region	.104**	-.034
Migration	.034	.040
Workstation type	-.080*	-.021
Industry	.017	.045
R^2	0.010	.009
Gender	.032	-.022
Age	-.025	-.066
Regions	.080*	-.019
Migration	.034	.033
Workstation type	-.059	-.013
Industry	.007	.040
PDI	-.048	-.016
UAI	.101**	-.051
MAS	.053	.018
IDV	.029	-.070
LTO	.222***	.001
R^2	.070***	.015
ΔR^2	0.060	.006

Note: *p < 0.05; **p < 0.01; ***p < 0.001. Regression method: Enter.
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS= Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index
R^2: Variation explained by the regression model

Amenities. Regression results show that while the satisfaction with on-site amenities had not significant correlation with individuals' demographic characteristics, it was significantly associated with *Uncertainty Avoidance* and *Individualism*. Respondents with stronger UAI or weaker IDV were more satisfied with on-site amenities.

Functional comfort. The results show that the satisfaction with *functional comfort* was significantly influenced by industrial difference and values for *Power Distance* and *Individualism*. Respondents with stronger hierarchical or individualistic values were more satisfied with the functional comfort of their workspace.

Table 5.6 Correlation between cultural dimensions and workspace satisfaction

Workspace items	Spearman's rho (n=834)				
	PDI	UAI	MAS	IDV	LTO
SO1.Location reflecting organisational power	-.022	.155**	.005	.039	.200**
SO2.Buiding appearance	.009	.151**	.000	.076*	.173**
SO3. Sense of belonging	-.095**	.226**	-.088*	-.054	.265**
SO4. Aesthetics of interior design	.121**	.085*	.163**	.240**	.145**
SO5. Branding of organisational culture	-.002	-.065	-.041	-.096**	-.195**
SO6. Green plants	.056	.115**	.083*	.185**	.125**
SO7. Breakout space	.096**	.097**	.109**	.215**	.104**
LO1. Local amenities	.005	.106**	.021	.028	.089*
LO2. Transportation	-.021	.094**	.019	.040	.090**
PM1. Cleanliness	.002	.047	.052	.116**	.123**
PM2. Waiting time for lifts	.03	.072*	.073*	.086*	.145**
PM3. Toilet	-.028	.089*	.015	.047	.132**
FC1. Ease of communication	.053	.092**	.079*	.127**	.156**
FC2. Ease of supervision	.022	.085*	.069*	.128**	.176**
FC3. Remote working possibility	.103	.022	.014	.101	.092
AM1. Fitness facilities	-.014	.170**	-.061	-.091**	.153**
AM2. Catering	-.036	.161**	-.047	-.096**	.125**
AM3. Library	-.077*	.201**	-.093*	-.154**	.144**
WS1. IEQ	-.078*	.109**	.019	-.030	.134**
WS2. Furniture comfort	-.079*	.105**	-.007	.021	.135**
WS3. Space amount	-.094**	.133**	-.077*	-.119**	.180**
WS4. View out of windows	-.129**	.195**	-.028	-.121**	.167**
WS5. Personalisation possibility	.086	-.026	.073	.120*	.111
WS6. Privacy	-.052	.171**	-.073*	-.129**	.126**
WS7. Expression of status	-.085*	.099**	-.058	-.080*	.154**

Note: *p < 0.05; **p < 0.01;
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS= Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index

Overall workspace satisfaction. The results show respondents' overall workspace satisfaction could be explained by regional differences and values for *Uncertainty Avoidance* and *Long-term Orientation*. Respondents with stronger UAI and LTO were more satisfied with their overall workspace.

Forgiveness. No significant influence of demographic characteristics and cultural values on forgiveness was identified in the analysis. This might suggest that forgiveness in the Chinese workspace is less influenced by individuals' cultural values.

To further understand how culture affects employees' satisfaction and preference over each workspace element, the correlations between the Hofstede's five cultural dimensions and 25 measured workspace items were tested. Table 5.6 illustrates the results.

It shows that respondents with stronger *Uncertainty Avoidance* and *Long-term Orientation* were more satisfied with most workspace elements. Perhaps the concern for job security and career development has increased the tolerance range of respondents. However, respondents having stronger *Power Distance* tend to have lower satisfaction with workspace qualities and sense of belonging but higher satisfaction with the aesthetic of interior design and breakout space.

Individualism was negatively correlated with the satisfaction with amenities and some workstation qualities but positively corrected with the satisfaction with most social and functional items. A similar trend was observed in the dimension of *Masculinity* but with fewer number of significant correlations.

Based on the correlations, it seems that the five cultural dimensions can be categorised into two groups. *Uncertainty Avoidance* and *Long-term Orientation* determine people's tolerance range for workspace and affect whether an employee would evaluate their satisfaction with a workspace quality higher or lower. *Power Distance, Masculinity* and *Individualism* affect individuals' attitude toward social and personal space.

5.3.5 Regional effects

5.3.5.1 Cultural differences between regions

Table 5.7 shows the cultural differences between Shanghai, Guangzhou and the other cities. Shanghai and Guangzhou were significantly different in terms of *Power Distance, Uncertainty Avoidance* and *Long-term Orientation.* The culture of Shanghai respondents was weaker in these three dimensions. The culture of respondents in the group of other cities had the lowest scores in *Power Distance*, *Masculinity* and *individualism.*

Table 5.7 Comparison of respondents' cultural values between regions

Cultural dimensions		PDI	UAI	MAS	IDV	LTO
Mean score	Guangzhou (n=429)	-0.36	0.15	-0.36	-0.15	0.9
	Shanghai (n=249)	-0.62	-0.04	-0.4	-0.15	0.72
	Other cities (n=156)	-0.81	0	-0.83	-0.76	0.87
Mann-Whitney U test						
Z (Shanghai versus Guangzhou)		-2.560*	-2.138*	-0.584	-0.016	-2.347*
Z (Shanghai versus other cities)		-2.201*	-.0316	-3.957**	-5.492**	-1.702
Z (Guangzhou versus other cities)		-4.480**	-1.471	-4.879**	-5.914**	-0.213

Note: *p < 0.05; **p < 0.01;
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS= Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index

5.3.5.2 Regional effects on workspace satisfaction

Mann-Whitney U test was conducted to examine the differences in respondents' satisfaction over the 25 workspace variables and overall workspace satisfaction. The results are presented in Figure 5.3 and Table 5.8.

Social environment. Mann-Whitney U test shows respondents in Shanghai and Guangzhou were more satisfied with location reflecting organisational power, green plants and breakout space than respondents in the other cities. In regard to sense of belong, the satisfaction ratings in Guangzhou and the other cities were lower than in Shanghai. Besides, employees in Guangzhou had highest satisfaction with aesthetics of interior design while the satisfaction of employees in the other cities with the item was the lowest.

Location. Respondents in Shanghai had a higher satisfaction with transportation than respondents of the other two groups.

Property management. Respondents in Guangzhou were more satisfied with cleanliness than respondents of the other two groups. Respondents in other cities had lowest satisfaction with waiting time for lifts.

On-site amenities. Guangzhou employees were more satisfied with fitness facilities and library than employees in the other two groups.

Functional comfort. There was no significant difference between Shanghai and Guangzhou. But in regard to ease of supervision, respondents in Shanghai and Guangzhou were more satisfied than respondents in the other cities.

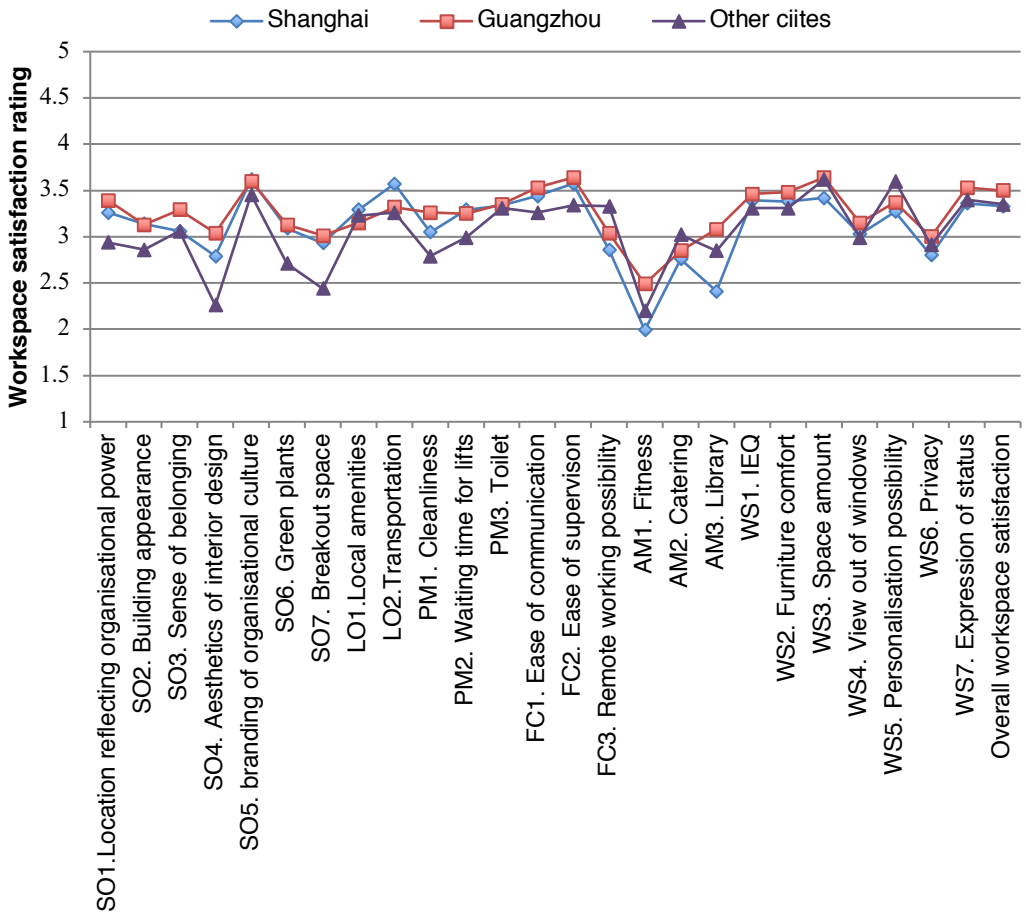


Figure 5.3 Comparison of workspace satisfaction between regions
(Shanghai: n =249, Guangzhou: n =429, other cities: n =156)

Workstation qualities. Respondents in Guangzhou were more satisfied with space amount, privacy and expression of status than respondents in Shanghai, and more satisfied with furniture comfort, view out of windows and expression of status than respondents in the other cities. But there was no significant difference between Shanghai and the other cities.

Overall workspace satisfaction. Respondents in Guangzhou had a higher overall workspace satisfaction than the other two groups.

In general, the main regional differences found were in the satisfaction with the *Social environment.* Although significant differences were also found in terms of *Amenities* and *Workstation quality,* the differences were smaller.

Table 5.8 Mann-Whitney U test for respondents' workspace satisfaction between regions (Shanghai: n =249, Guangzhou: n =429, other cities: n =156)

Workspace variables	Z		
	Shanghai versus Guangzhou	Shanghai versus other cities	Guangzhou versus other cities
SO1. Location relative to organisational power	-1.894	-2.914**	-4.78**
SO2. Building appearance	-0.343	-2.812**	-2.903
SO3. Sense of belonging	-2.689**	-0.047	-2.265
SO4. Aesthetics of interior design	-2.886**	-3.685**	-6.221**
SO5. Branding of organisational culture	-0.078	-1.612	-1.707
SO6. Green plants	-0.075	-3.808**	-4.541**
SO7. Breakout Space	-0.493	-3.561**	-4.642**
LO1. Local amenities	-1.936	-0.22	-1.294
LO2. Transportation	-3.815*	-2.773*	-0.047
PM1. Cleanliness	-2.177*	-1.753	-3.87**
PM2. Waiting time for lifts	-0.040	-2.319*	-2.512*
PM3. Toilet	-0.154	-0.335	-0.547
FC1. Ease of communication	-1.942	-2.09	-3.889**
FC2. Ease of Supervision	-1.547	-2.78**	-4.383**
FC3. Remote working possibility	-1.168	-0.471	-0.144
AM1. Fitness facilities	-4.535**	-1.206	-2.467*
AM2. Catering	-1.759	-2.258	-1.039
AM3. Library	-6.275**	-2.852**	-2.612**
WS1. IEQ	-1.223	-0.52	-1.469
WS2. Furniture Comfort	-1.621	-1.002	-2.353**
WS3. Space amount	-3.203**	-1.929	-0.441
WS4. View out of windows	-1.736	-0.633	-1.995**
WS5. Personalisation possibility	-0.562	-0.457	-0.31
WS6. Privacy	-2.928**	-0.657	-1.471
WS7. Expression of status	-3.001**	-0.279	-2.101**
Overall workspace satisfaction	-3.000**	-.088	-2.377*

Note: *p < 0.05; **p < 0.01.

5.3.5.3 Regional effect on workspace preferences

Linear regression models set up for the three groups explained 42-67% of variance of respondents' overall workspace satisfaction. It seems that there are other contextual factors also importantly influence overall workspace, while the importance vary across regions.

The finding illustrated that *Social environment* and *Workstation quality* were two of the major explanatory variables for overall workspace satisfaction irrespective of regional difference.

Table 5.9 Variation of overall workspace satisfaction explained by six workspace components by region

Workspace components	Standardised regression coefficient β		
	Shanghai (n=249)	Guangzhou (n=429)	Other cities (n=156)
Social environment	.436***	.404***	.463***
Workstation quality	.504***	.430***	.425***
Property management	.176***	.189***	.177**
Amenities	.268***	.165***	.203***
Location	.128***	.104**	.175***
Functional comfort	.084	.138***	.028
Variation explained R^2	.423***	.493***	.657***

Note: *p<0.05, **p<0.01, ***p<0.001. Regression method: Enter.

Table 5.10 Variation of overall workspace satisfaction explained by detailed workspace variables by region

Workspace variables	Standardised regression coefficient β		
	Shanghai (n=249)	Guangzhou (n=429)	Other cities (n=156)
LO1. Local amenities		.106**	
SO2. Building appearance	.155**		
SO3.Sense of belonging	.158**	.230***	.247***
SO4. Aesthetics of interior design		.216***	.202**
FC. Ease of supervision		.106**	.122*
WS1.IEQ	.186**		.278***
WS3. Space amount	.189**	.254***	
WS5. View out of windows	.155**		
WS6. Privacy	.113*		
WS7. Expression of status		.129**	.161**
PM2. Toilet			.123*
PM3. Waiting time for lifts	0.149**		
Variation explained R^2	.506***	.443***	.670***

Note: *p<0.05, **p<0.01, ***p<0.001. Regression method: Stepwise.
All insignificant coefficients are omitted

However, in Shanghai and Guangzhou, *Workstation quality* had a greater importance than *Social environment* while the other cities showed an opposite trend (Table 5.9).

Further stepwise regression for detailed workspace elements shows that despite the similar emphasis on *Social environment* and *Workstation quality*, the detailed preferences of respondents in different regions were different (Table 5.10). Some features can be captured.

1) Sense of belonging was common for respondents in all the three groups;

2) Regarding *Social environment*, respondents in Shanghai appeared to focus on external expression while the respondents of the other two groups paid more attention to internal expression;

3) Regarding *workspace quality*, respondents in Shanghai paid more attention to the physical quality of workstations while respondents in Guangzhou and other cities paid more attention to the status symbols.

The comparison on workspace likes shows that interpersonal relationship and atmosphere, ease of communication and brightness were mentioned most frequently in Shanghai (Table 5.11). But these three elements ranked second to space amount in Guangzhou and have lower frequencies in the other cities (fifth for interpersonal relationship and atmosphere, tenth for brightness and eleventh for ease of communication). Space amount also ranked on top in the group of other cities. It was followed by accessibility of buildings and green plants.

Table 5.11 Comparison of liked workspace characteristics between regions (% of respondents)

Shanghai (n=249)	%	Guangzhou (n=429)	%	Other cities (n=156)	%
Interpersonal relationship & atmosphere	10.44	Space amount	6.53	Space amount	7.05
Ease of communication	6.02	Interpersonal relationship & atmosphere	5.83	Accessibility of the building	3.85
Brightness	5.62	Brightness	5.83	Green plants	3.21
Accessibility of the building	5.22	Ease of communication	5.83	Interior design aesthetics	3.21
Privacy	4.82	Interior design aesthetics	3.73	Interpersonal relationship & atmosphere	2.56
Green plants	4.82	Green plants	3.50	Privacy	2.56
Space amount	4.42	Catering	2.10	ICT	2.56
Interior design aesthetics	3.61	Views out of windows	2.10	Cleanliness	2.56
Cleanliness	2.41	Cleanliness	2.10	Breakout space	1.92
Catering	2.01	ICT	1.63	Brightness	1.92
Cultural symbols	2.01	Breakout space	1.63	Ease of communication	1.92
Subdivision of space	1.61	Accessibility of the building	1.40	Ease of supervision	1.28
Freedom	1.61	Subdivision of space	1.40	AC and temperature	1.28
Remote working possibility	1.61	Feeling of humanisation	1.40	Noise	1.28
Local Amenities	1.61	Freedom	1.40	Subdivision of space	0.64

Table 5.12 Comparison of disliked workspace characteristics between regions (% of respondents)

Shanghai (n=249)	%	Guangzhou (n=429)	%	Other cities (n=156)	%
Space amount	8.43	Space amount	8.39	Space amount	10.26
AC and temperature	6.02	Air quality	7.69	Air quality	6.41
Privacy	5.62	Privacy	4.90	Privacy	4.49
Air quality	5.22	AC and temperature	4.43	Interior design aesthetics	4.49
Toilet	3.61	Interior design aesthetics	4.20	AC and temperature	2.56
ICT	3.21	Breakout space	3.73	ICT	2.56
Cleanliness	3.21	Cleanliness	3.26	Breakout space	1.92
Noise	3.21	ICT	2.56	Green plants	1.28
Interior design aesthetics	2.81	Noise	2.33	Brightness	1.28
Subdivision of space	2.01	Accessibility of the building	1.63	Cleanliness	1.28
Local amenities	1.61	Availability of meeting rooms	1.63	Local amenities	0.64
Availability of meeting rooms	1.61	Green plants	1.40	Ease of communication	0.64
Views out of windows	1.61	Brightness	0.93	Amenities	0.64
Accessibility of the building	1.20	Furniture comfort	0.93	Receptions	0.64
Breakout space	1.20	Toilet	0.93	Noise	0.64

In regard to what respondents disliked (Table 5.12), the top few self-reported undesirable workspace characteristics were almost identical among the three groups. Space amount ranked on top, followed by AC & temperature or air quality and privacy, with 20-21% of respondents in all the three groups selecting these characteristics.

5.3.6 Industrial effects

5.3.6.1 Cultural differences between industries

In order to examine the influence of industrial effect, respondents were split into three groups based on their industries. (Industry 1- professional services; Industry 4 - manufacturing; Other industries). The cultural values of respondents in each were compared based on Hofstede' five cultural dimensions.

Table 5.13 summarised the result of Mann-Whitney U test. It appears that respondents in

Industry 4 - manufacturing had the strongest *Power Distance*, *Masculinity* and *Individualism* while respondents in the group of other industries had the lowest score for these three cultural dimensions. In terms of *Uncertainty Avoidance* and *Long-term Orientation*, the differences between the threes industrial groups is not significant. All the three groups showed a strong *Long-term Orientation* tendency, but medium strong *Uncertainty Avoidance.*

Table 5.13 Comparison of respondents' cultural values between industries

Cultural dimensions		PDI	UAI	MAS	IDV	LTO
Mean score	Professional service (n=394)	-0.49	0.04	-0.38	-0.13	0.81
	Manufacturing (n=199)	-0.2	0.01	-0.21	0.18	0.85
	Other industries (n=241)	-0.81	0.15	-0.77	-0.81	0.89
Mann-Whitney U test						
Z (Industry 1 versus Industry 4)		-2.788**	-.485	-1.894	-3.147**	-.483
Z (Industry 1 versus Other industries)		-3.793**	-1.258	-4.755**	-7.933**	-.997
Z (Industry 4 versus Other industries)		-5.572**	-1.400	-5.530**	-9.341**	-.362

Note: *p < 0.05; **p < 0.01;
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS= Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index

5.3.6.2 Workspace satisfaction

Figure 5.5 compares respondents' workspace satisfaction rating between industries. It shows that respondents in manufacturing had significantly higher satisfaction scores in most surveyed items than the other two industrial groups except for transportation, view out of window and privacy.

The satisfaction ratings of respondents in the professional services sector and the other industries, however, were close. Significant differences were found in terms of *Social environment* and ease of supervision only (Table 5.14). Amongst the three industrial groups, respondents in the manufacturing sector had the highest overall workspace satisfaction and the respondents in the group of other industries had the lowest. In general, it appears that the satisfaction with the *Social environment* of workspace and ease of supervision, and overall workspace satisfaction, are the facets where industrial differences are most likely to be found.

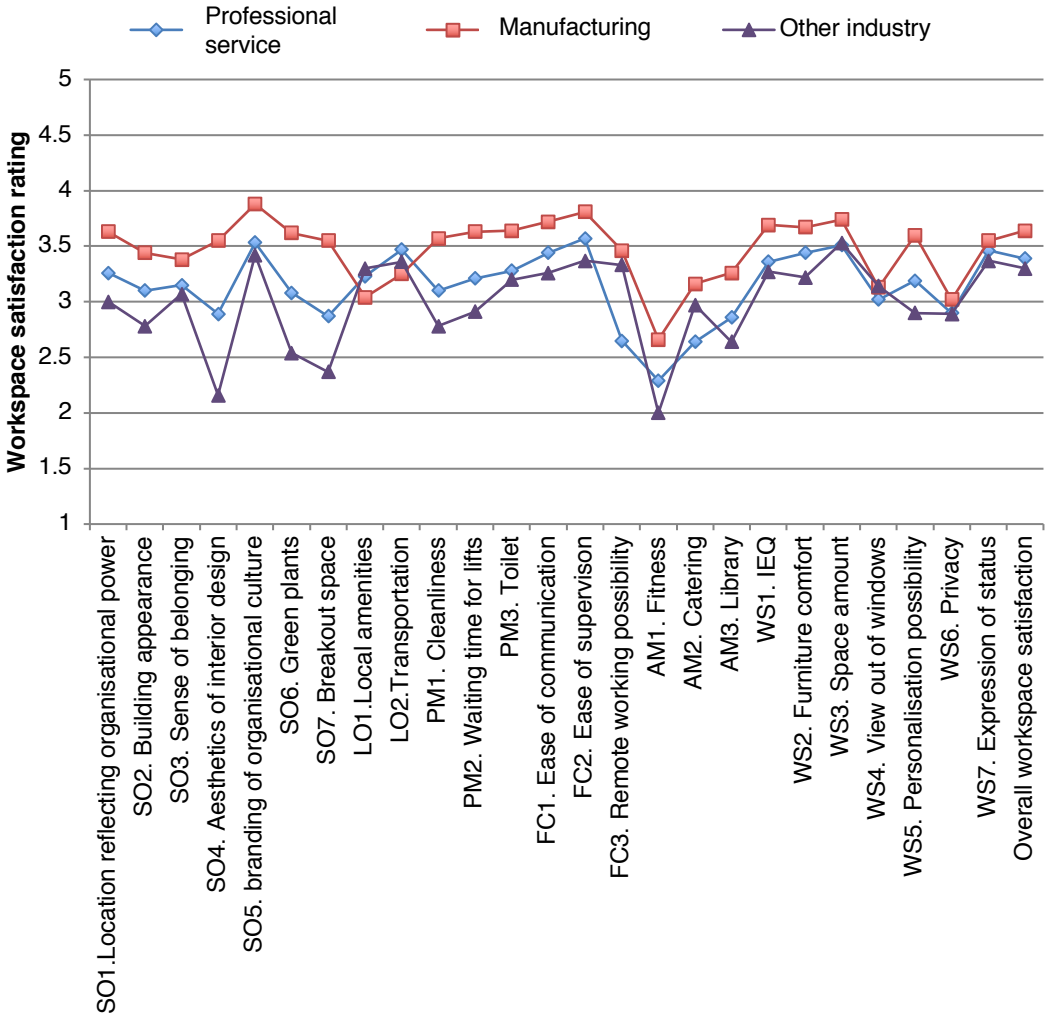


Figure 5.4 Comparison of workspace satisfaction between industries
(Professional service: n=394; Manufacturing 4: n=199; Other industry: n=241)

5.3.6.3 Industrial effects on workspace preferences

Regression models set up for the three industrial groups explained 43-63% of variance of respondents' overall workspace satisfaction. Similar to regional effects, it seems that contextual factors also play an important role on the overall workspace satisfaction.

It is illustrated that *Workstation quality* had the strongest effect on overall workspace satisfaction irrespective of industrial difference (Table 5.15). It was followed by *Social* with overall workspace satisfaction while the correlation between *Function comfort* and overall workspace satisfaction was significant. This is opposite to the other groups.

Table 5.14 Mann-Whitney U test for workspace satisfaction between industries
(Professional service: n=394; Manufacturing: n=199; other industry: n=241)

Workspace variables	Z		
	Professional service versus Manufacturing	Professional service versus other industries	Manufacturing versus other industries
SO1. Reflection of organisational power	-4.195**	-3.538**	-6.336**
SO2. Building appearance	-4.174**	-4.172**	-6.601**
SO3. Sense of belonging	-2.441*	-0.915	-2.876**
SO4. Aesthetics of interior design	-6.25**	-7.258**	-10.518**
SO5.Branding of organisational culture	-4.412**	-1.470	-5.240**
SO6. Green plants	-5.408**	-5.731**	-9.032**
SO7. Breakout Space	-6.045**	-5.008**	-8.762**
LO1. Local amenities	-2.443*	-1.179	-2.982**
LO2. Transportation	-2.939	-1.129	-1.643
PM1. Cleanliness	-4.877**	-3.359	-6.668**
PM2. Waiting time for lifts	-5.354**	-3.302	-6.73**
PM3. Toilet	-4.278**	-1.337	-4.646**
FC1. Ease of communication	-3.809**	-2.971	-5.7**
FC2. Ease of Supervision	-3.505**	-3.799**	-5.982**
FC3. Remote working possibility	-4.759**	-1.115	-0.246
AM1. Fitness facilities	-2.401*	-2.984	-4.835**
AM2. Catering	-4.126**	-2.351	-2.167*
AM3. Library	-3.212**	-2.588	-4.635**
WS1. IEQ	-3.75**	-1.189	-4.287**
WS2. Furniture Comfort	-3.143**	-3.364	-5.383**
WS3. Space amount	-3.01**	-0.215	-3.068**
WS4. View out of windows	-1.012	-0.852	-0.232
WS5. Personalisation possibility	-3.392**	-0.861	-2.131*
WS6. Privacy	-1.658	-0.549	-1.919
WS7. Expression of status	-1.761	-1.696	-2.92**
Overall workspace satisfaction	-4.296**	-2.117*	-5.450**

Note: *p < 0.05; * *p < 0.01.

Table 5.15 Variation of overall workspace satisfaction explained by six workspace components by industry

Workspace components	Standardised regression coefficient β		
	Professional service (n=394)	Manufacturing (n=199)	Other industries (n=241)
Social environment	.393***	.413***	.394***
Workstation quality	.489***	.460***	.429***
Property management	.174***	.161**	.160***
Amenities	.247***	.096	.291***
Location	.142***	.001	.166***
Functional comfort	.043	.213***	.078
Variation explained R^2	.434***	.448***	.632***

Note: *p<0.05, **p<0.01, ***p<0.001.

Table 5.16 Variation of overall workspace satisfaction explained by detailed workspace variables by industry

Workspace variables	Standardised regression coefficient β		
	Professional service (N=394)	Manufacturing (N=199)	Other industries (N=241)
SO2. Building appearance	.135**		
SO3. Sense of belonging	.185***	.204**	.236***
LO1. Local amenities	.111**		
FC1. Ease of communication		.182**	
PM3. Toilet			.105*
AM1. Fitness facilities	.100*		
AM2. Catering			.196***
WS1. IEQ	.156**		.119*
WS2. Furniture comfort	.184***		
WS3. Space amount	.187***	.303***	
WS4. View out of windows			.140**
WS6. Privacy		.143*	
WS7. Expression of status			.204***
Variation explained R^2	.453***	.464***	.650***

Note: *P<0.05, **p<0.01, ***p<0.001. All insignificant coefficients are omitted.

Further stepwise regression was conducted to examine the workspace preferences of office workers in the three industrial groups. The results show that (Table 5.16):

1) Sense of belonging was common for three groups.

2) Respondents in Industry 4 tended to focus on functional aspects of workspace. Issues such as communication, space amount, and privacy were reported to be influential on their workspace satisfaction.

3) Respondents in Industry 1 tended to focus on the convenience and ergonomic aspect of their workspace. This may be explained by their industrial demands as most of respondents in this sector come were graphic designers who have to work on their desk for long hours.

4) Respondents in other industries had quite different preferences from Industry 1 and 4. They focused more on the psychological experience of personal workstations apart from catering, IEQ and toilet.

Analysis on what employees liked about their workspace shows that interpersonal relationship and atmosphere were the most important elements that make employees feel happy in Industry 1 and the group of other industries. However, it was not mentioned in Industry 4, an industry with individualistic culture. Ease of communication, brightness, green plants and space amounts were common preferences among the three groups. But privacy, the third most desirable workspace feature reported by the group of other industries, was not mentioned by the respondents in Industry 1 and ranked only eighth in Industry 4. This contradicts the literature in which privacy is recognised as relating to individualism. In this study, respondents in the group of other industries showed a more collectivist tendency than their counterparts in Industry 1 and Industry 4.

Regarding what respondent dislike, space amount and air quality ranked as top two, with over 13-16% of respondents mentioned them in all the three groups. They were followed by privacy or noise. Most workspace characteristics mentioned as undesirable workspace features in fact were similar between the industries although the rankings were different. The findings are summarised in Table 5.17 and Table 5.18.

Table 5.17 Comparison of liked workspace characteristics between industries (% of respondents)

Industry 1 (n=394)	%	Industry 4 (n=199)	%	Other cities (n=241)	%
Interpersonal relationship & atmosphere	10.49	Brightness	6.88	Interpersonal relationship & atmosphere	5.12
Space amount	8.18	Interior design aesthetics	6.35	Brightness	4.72
Ease of communication	4.35	Space amount	5.82	Privacy	4.33
Brightness	5.88	Green plants	5.29	Ease of communication	3.94
Green plants	3.32	Ease of communication	5.29	Green plants	3.54
Interior design aesthetics	3.32	Catering	4.23	Views out of windows	3.15
Accessibility of the building	2.81	Accessibility of the building	3.70	Accessibility of the building	2.76
Remote working possibility	2.30	Privacy	3.70	Space amount	2.76
ICTs	2.05	Cleanliness	3.70	Amenities	2.36
Cleanliness	1.79	Subdivision of space	2.65	Cultural symbols	1.97
Breakout space	1.53	Breakout space	1.59	Interior design aesthetics	1.97
Catering	1.28	Cultural symbols	1.59	Cleanliness	1.97
Views out of windows	1.28	Air quality	1.59	ICTs	1.57
Local amenities	1.02	Acoustic environment	1.59	Breakout space	1.18
Ease of supervision	1.02	Availability of meeting rooms	1.06	AC and temperature	1.18

Table 5.18 Comparison of disliked workspace characteristics between industries (% of respondents)

Industry 1 (n=394)	%	Industry 4 (n=199)	%	Other cities (n=241)	%
Air quality	6.65	Space amount	7.41	Space amount	11.42%
Space amount	6.65	Air quality	6.35	Air quality	5.12%
Privacy	5.63	Noise	5.82	Privacy	5.12%
AC and temperature	4.09	Privacy	5.29	Breakout space	4.72%
Interior design aesthetics	4.09	AC and temperature	4.76	ICTs	3.54%
Cleanliness	3.58	Transportation	3.17	Interior design aesthetics	2.76%
ICTs	2.81	Availability of meeting rooms	3.17	Cleanliness	2.36%
Breakout space	1.53	Breakout space	2.12	Toilet	2.36%
Acoustic environment	1.53	Views out of windows	2.12	AC and temperature	1.97%
Toilet	1.28	Property maintenance	2.12	Green plants	1.18%
Accessibility of the building	1.02	Subdivision of space	1.59	Catering	1.18%
Lifts	1.02	Green plants	1.59	Views out of windows	1.18%
Local amenities	0.77	Interior design aesthetics	1.59	Ease of supervision	0.79%
Availability of meeting rooms	0.77	Cleanliness	1.59	Subdivision of space	0.79%
Green plants	0.77	Toilet	1.59	Availability of meeting rooms	0.79%

5.4 Summary of the study

The data from this study showed that Chinese culture is not like what some people think. Compared to the Chinese Cultural Index provided by Hofstede (2016), the culture of respondents in this study was weaker in *Power Distance* and *Masculinity* but stronger in *Individualism* and *Uncertainty Avoidance.* The strong *Long-term Orientation* is consistent with the findings of Hofstede. The regional cultures are different from what has been described by stereotypes too. For example, the culture of Guangzhou in fact has the strongest UAI.

The national culture appeared to have influenced respondents' workspace satisfaction. But different cultural dimensions may have different effects. In particular, the strong *Long-term Orientation* culture plus median *Uncertainty Avoidance* had made job security and career development become Chinese employees' priority and accordingly rendered them more tolerant of the workspace by lowering their expectation for workspace.

In addition, the results show the strong emphasis on the social environment of organisations created by workspace. But this does not mean that Chinese are not concerned for personal space in the workspace. In fact, their emphasis on the qualities of their own personal workstation appeared as strong as their social needs.

The study found that the emphasis on *Social environment and Workstation quality* was hardly altered by regional and industrial effects. Although variables that may predict overall workspace satisfaction tended to vary across industries and regions, they mainly felt into these two components. The differences between industries seemed affected by competence requirements. But the mechanism about how cultural affects preferences in between group level appear to be more complicate and remain to further examined.

The regional and industrial effects on workspace satisfaction were significant, particularly on the component *Social environment.* However, the data also show the variance explained by cultural values was small.

In summary, the culture and workspace preferences and satisfaction in China are distinctive. Regional and industrial effects tend to be subject to the national effect. Despite this, the influences of regional values and competences requirement should not be overlooked.

6 Study Two: Unpacking organisational effects

6.1 Research aim and questions

The complexity of workspace design is that, beyond desires and satisfaction, it is also a real-world issue. While workspace design professionals and facility managers believe that an ideal workspace should fulfil workers' needs and preferences so as to motivate them, in fact there are many constraints affecting the design of workspace. Understanding how workspace designed under these constrains affects employees' accommodative behaviours at the workplace thus becomes a particularly important issue to fully understand the role of culture in workspace design. Therefore, this second study described in this chapter extended the research scope into specific organisational environments. Four organisations in two industries were selected as case studies. Each organisation has an office in both Shanghai and Guangzhou. The reason and criteria for selecting these organisations were introduced in Chapter 4. Perceived organisational culture, organisational background and physical workspace were included for cross-organisational comparison in addition to employees' values, workspace satisfaction and preferences. The relationship between this second study and *Study 1* is, while *Study 1* focuses on the pre-organisational issues conditioned by national, regional and industrial cultures, this *Study 2* concentrates on intra-organisational issues to see how organisational differences may have flexed the effect of national, regional and industrial cultures on workspace preferences, cognition and employees' accommodative behaviours.

In Chapter 1, it was argued that in organisations, employees create a person-environment fit based on the perception of organisational environment including the physical space and the organisational culture, as well as their personal values. Thus, the core to crack the cultural nut in organisational workspace design and management is to understand the dynamic interaction between office users' cognition, accommodative behaviour and various organisational and individual factors. To this end, this study examined:

1) How do organisational factors e.g. organisational culture and workspace design, affect employees' values, workspace satisfaction and accommodative behaviours?

2) How do the above influences moderate national, regional and industrial effects?

6.2 Methodology

6.2.1 Study design

To answer these research questions, in the study, physical workspace characteristics of each office, employees' cultural values, perceived organisational culture, workspace satisfaction and preferences were compared between organisations. The similarities and differences between regions and between industries were also summarised.

After that, the correlations between workspace characteristics, employees' values, perceived organisational culture, workspace satisfaction and preferences were tested in pairs to explore the causal relationships between them and interpret the within and between organisational differences identified in case studies. Based on the findings, the influences of organisational factors on employees' workspace satisfaction and accommodative behaviours were theorised.

6.2.2 Samples

The data about employees' workspace satisfaction, expectations, cultural values and perceived organisational culture used the samples collected in the second phases of fieldwork. The total sample size of the eight case studies was 286. The demographic features of the samples were described in Table 4.6 on page 109.

Because the simple sizes of some offices were small, and many respondents did not answer open-ended questions in the WCS questionnaire empty, comparison of results between the case studies might be biased. Therefore, data about what employees like and dislike was not compared in this study.

The data on workspace characteristics used the workspace parameters coded through the WCS Space Coding Sheet in site visits and analysis of offices layouts.

6.2.3 Data analysis

6.2.3.1 Measure cultures, workspace satisfaction and forgiveness

Based on the data collected by questionnaires, in the study the mean scores of Hofstede' five cultural dimensions, Cameron and Quinn's four dominant organisational culture characteristics and employees' satisfaction with different workspace variables were

computed to describe employees' cultural orientation, organisational culture and workspace design effect for each of the case studies. Employees' workspace forgiveness is computed according to Equation 2 (page 110).

6.2.3.2 Identify workspace expectations

To make the results comparable to the findings of *Study 1*, similar multiple linear regression analysis was conducted for the six workspace components to suggest their relative importance for each case study. Assumptions of regression analysis were checked for each analysis and tests for normality, linearity, and homoscedasticity of residuals were included. The results did not indicate a deviation from the assumption of normal distribution.

However, due to the limitation of sample size of some case studies, in this study it was not appropriate to use regression models to examine the relative importance of 25 workspace variables in contributing to overall workspace satisfaction. The analysis instead tested the correlation between each workspace variable and overall workspace satisfaction. Visual and numerical inspection of data showed that the most variables were negatively skewed to a moderate extent, therefore Spearman's rho was tested. Workspace variables significantly correlated with overall workspace satisfaction were recognised as employees' expectations. Correlation coefficients reflect their relative importance.

6.2.3.3 Comparison of workspace parameters, satisfaction, expectations and cultures

Because the data distributions of most variables were negatively skewed to a moderate extent, non-parametric tests were employed to compare the differences between case studies. Kruskal-Wallis H test was used when a comparison between more than two groups of samples is requited. Mann-Whitney U test was employed to explain the differences between two groups of samples.

6.2.3.4 Test the relationships between cultures, workspace, satisfaction and expectations

Spearman's rho coefficients were tested to analysis the correlations between employees' culture, workspace satisfaction, workspace expectation, organisational culture and workspace characteristics.

6.3 Case study 1 – AA Company

6.3.1 Background

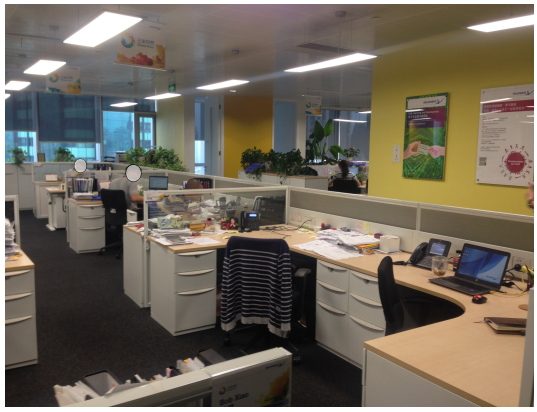
AA is a global leading supplier of building and construction coating materials originated in the Netherlands. Its first Chinese factory was built in Guangzhou in 1980s. In 2013, a new Chinese head office was opened in Shanghai to accommodate over 800 employees. Later in 2014, a branch office in South China was set up in the CBD of Guangzhou for around 120 employees. The company implements a standardised design with the same colours and decoration in the two offices. The case studies were conducted in the company's Guangzhou office and the administrative department of the Shanghai office during the summer of 2015.

6.3.2 Physical space

6.3.2.1 The Shanghai office

Figure 6.1 Floor plan of the AASH office
(Source: drawn by Daibin Xie based on the office map provided by the JJGZ office)

Building appearance



Open-plan working area and workstations

Corridor

Canteen

Tel-conferece room

Figure 6.2 Exterior and interior appearance of the AASH office

（Source: photograph by Daibin Xie）

The office is in a class A multi-tenant building in Jin'an District, one of the most vigorous business areas in the city centre. Nearby amenities include shops, restaurants, banks, convenience stores, hospitals and a tourist destination. The building location has convenient connection to public transportation including buses and a subway station. AA Shanghai office (AASH) occupies four floors of the building (19th-22th). The 22th floor contains mainly shared space including a reception area, a library, a big canteen and some bookable meeting rooms. The 19th to 21th floors are work area.

Figure 6.1 shows the floor plan of 21th floor where the survey was conducted. The floor has a capacity of 220 desks. It consists of a large open-plan working area with a number of work settings including several enclosed offices and small meeting rooms, a breakout space, a tearoom, a shower room, a toilet, a hub room and two storage rooms. Managers are accommodated with enclosed rooms with opaque walls. Group heads sit close to their team members. Ordinary employees are located in the open-plan area and the head of each working group sits close to windows.

Most desks in the open-space are “L” shape, having medium high partitions along the two arms. File cabinets are placed next to desks along corridors. In order to market their products, the walls of the office are painted colourfully with the company’s products.

6.3.2.2 The Guangzhou office

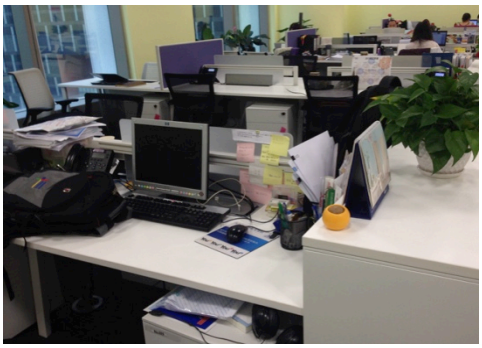
Figure 6.3 Floor plan of the AAGZ office
(Source: drawn by Daibin Xie based on the office map provided by the AAGZ office)

Buidling appearance

Café bar & kitchen

Open-plan working area

Multifunctional room



Workstations

Figure 6.4 Exterior and interior appearance of the AAGZ office

（Source: building appearance, https://image.baidu.com; others, photograph by Daibin Xie）

AA Guangzhou office (AAGZ) is also located in a class A office building in the city's CBD. The location has good public transportation connections with a number of bus lanes and a subway station within 5 minutes' walk. Nearby amenities include shops, restaurants, banks, parks, a museum and a city library.

AA occupies 3/4 of the 33th floor of the building. The work area is predominantly open with only three enclosed offices for top managers. There are a big meeting room and seven small meetings in the office. On-site amenities include a multifunctional area, a café bar & kitchen and two tearooms. The layout is organised by departments. Figure 6.3 shows the floor plan.

AA Guangzhou office has only three chief managers. They are accommodated with enclosed rooms with opaque walls and good privacy. Group heads are arranged at desks close to windows in the open-plan area with their subordinate sitting in the inner side. All the desks in the open-space are rectangular, having only low partitions at the front. Filling cabinets are arranged next to desks along corridors.

Like the Shanghai office, the office uses colours to brand their organisational culture following the company's design standards.

6.3.2.3 Comparison of workspace characteristics between the two offices

The characteristics of the two offices are summarised in Table 6.1 and Table 6.2. In most aspects, the two offices are similar. For instance:

1) The same colours are used in interior design;

2) Both offices adopt mainly open-plan design;

3) Despite the difference in layout, the rooms of top managers are hidden in a deep place. Visitors need to walk through a series of more public space such as meeting area, breakout space, then open-plan work area to finally access them.

The main differences are found in the allocation of space and workstations:

1) In general, the AAGZ office has a higher density;

2) The proportion of enclosed rooms in the AAGZ office is smaller than that in the AASH office;

3) The AAGZ office allocated nearly 50% of the space to supporting space such as meeting rooms, kitchens, storage rooms and tea rooms, bigger than that of the surveyed floor of Shanghai office. Most supporting space in the AASH office are put together on another floor;

4) The desks used in the two offices are different in shape too.

5) Regarding employees' personalisation behaviour, employees in Shanghai more frequently displayed photos of families or friends and self-care items on the desk.

Table 6.1 Comparison of workspace parameters: AAGZ office vs. AASH office

Workspace parameters		AAGZ	AASH
Building and location			
Location		1. Business centre or CBD	1. Business centre or CBD
Accessibility		3. Bus + subway	3. Bus + subway
Building type		2. Class-A office building	2. Class-A office building
Layout and interior design			
Net interior area of the visited floor (m^2)		841	1717
Desk number planned on the visited floor		120	220
Net interior area per desk (m^2)		5.6	7.8
Office type		3. Mainly open-plan	3. Mainly open-plan
Place of management	Top managers	2. Separate from employees	2. Separate from employees
	Middle managers		1. Close to employees
Visual accessibility to employees	Top managers	1. Not available	1. Not available
	Middle managers		2. Not available
Access to windows		1. Superiors have the priority	1. Superiors have the priority
Workspace area / desk (m^2)	Top managers	20	22
	Middle managers		16
	Ordinary employees	3.4	5.3
Place of meeting rooms		2. Separate from the working area but on the same floor	3. On other floors
Expression of organisational identity		3. Distinctive	3. Distinctive
Colour of interior design		2. Vivid	2. Vivid
% of enclosed rooms		5%	12%
% of open-plan space		48%	63%
% of floor-based support area		45%	18%
% of primary circulation area		3%	7%
Availability of amenities			
Breakout space		3. Good	3. Good
Catering		3. Good	3. Good
Canteen		1. Not available	3. Good
Fitness facilities		1. Not available	1. Not available
Library and training space		1. Not available	2. Available
Shower room		1. Not available	2. Available
Nursing room		1. Not available	2. Available
Workstation			
Shape		2. Rectangular	1. “L” shape
Partition height		2. Low	2. Low
Partition direction		2. Front only	3. Two arms of “L” shape

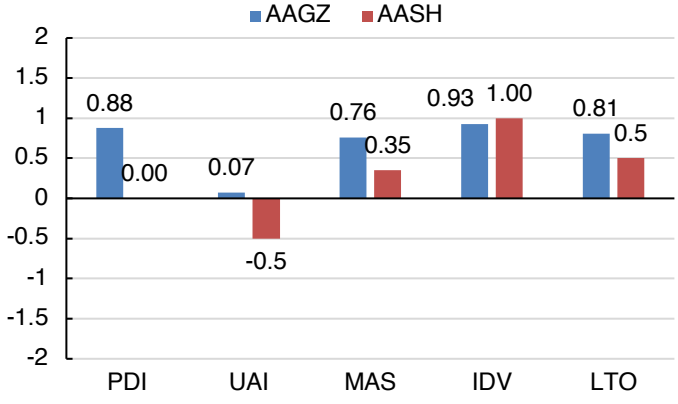
Table 6.2 Comparison of personalisation frequency: AAGZ office vs. AASH office
(Based on 20 desks)

	Photo	Artwork	Trinket	Plant	Gadget	Self-care	Merit	Work accessory	Total
AAGZ	3	0	6	6	2	7	1	15	40
AASH	11	1	7	4	2	15	0	13	53

6.3.3 Employees' values and perceived organisational culture

Comparison of cultural dimensions between AASH office and AAGZ office showed significant difference in *Power Distance* (PDI). Employees in AAGZ office had a stronger *Power Distance* than their counterparts in Shanghai. In regard to *Uncertainty Avoidance, Masculinity, Individualism and Long-term Orientation*, the difference between the two offices is not significant.

Respondents in both offices showed a *masculine* orientation and strong *Individualism*. But employees in the AAGZ office had a strong *Power Distance* while the culture of their counterparts in the AASH office were neutral in the dimension. These findings are opposite to the general trends of Chinese culture and regional differences found in *Study 1*.



Mann-Whitney U test

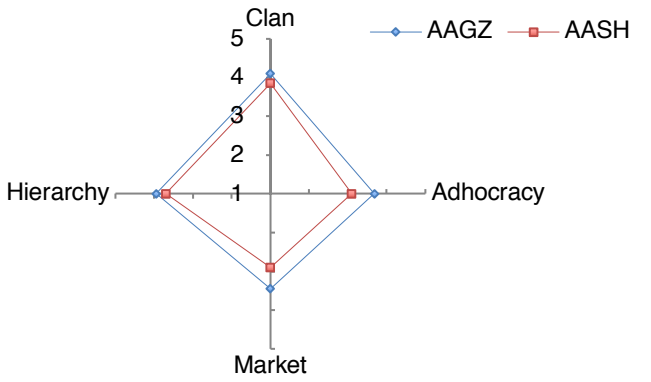
	Z	Sig. (2-tailed)
PDI	-2.823	.005**
UAI	-1.81	0.07
MAS	-1.443	0.149
IDV	-0.627	0.531
LTO	-0.767	0.443

Note: *P<0.05, **p<0.01

PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS =Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index

Figure 6.5 Comparison of employees' values: AAGZ office vs. AASH office
(AAGZ: n= 42; AASH: n=20)

Mann-Whitney U test result show that there was no significant difference in employees' perceived organisational culture between AASH office and AAGZ office. The perceived organisational cultures of these two offices both mainly reflected a combination of *Clan* and *Hierarchy* culture. The result is shown in Figure 6.6.



Mann-Whitney U test

	Z	Sig. (2-tailed)
Clan	-.913	.361
Adhocracy	-1.770	0.077
Market	-1.749	0.080
Hierarchy	-1.125	0.261

Note: *p<0.05, **p<0.01

Figure 6.6 Comparison of organisational culture: AAGZ office vs. AASH office (AAGZ: n= 42; AASH: n=20)

6.3.4 Workspace satisfaction and forgiveness

Figure 6.7 illustrates the workspace satisfaction of employees in the two offices. It shows that employees were satisfied with most workspace variables. Unsatisfactory factors in AAGZ office included sense of belonging, local amenities, transportation, view out of windows, fitness, catering, library, and privacy. The number of unsatisfactory factors in AASH office was fewer, including remote working possibility, fitness, view out of windows, and privacy only.

Mann-Whitney U test result shows that in six variables, AASH employees had significantly higher satisfaction than AAGZ employees. These variables were:

1) Local amenities (AAGZ mean=3.29, AASH mean=3.90; Z=-2.337, p<0.05)

2) Transportation (AAGZ mean=3.33, AASH mean=4.20; Z=-3.588, p<0.001)

3) Catering (AAGZ mean=2.60, AASH mean=3.75; Z=-2.112, P<0.05)

4) Library (AAGZ mean=1.45, AASH mean=2.85; Z=-2.112, P<0.05)

5) Furniture comfort (AAGZ mean=3.55, AASH mean=4.00; Z=-2.439, P<0.05)

6) Personalisation possibility (AAGZ mean=3.56, AASH mean=4.00; Z=-2.308, P<0.05).

The differences in the satisfaction with catering, library, furniture comfort and personalisation possibility may be caused partly by the different physical workspace characteristics. AAGZ office has no canteen and library. Rectangular desks with low-partition also reduced the size and privacy of personal workspace in AAGZ office, which might have discouraged employees to personalise their workstations. However, the differences in the satisfaction with local amenities and transportation were hard to explain as the two offices are both located in CBD with good public transportation and living facilities

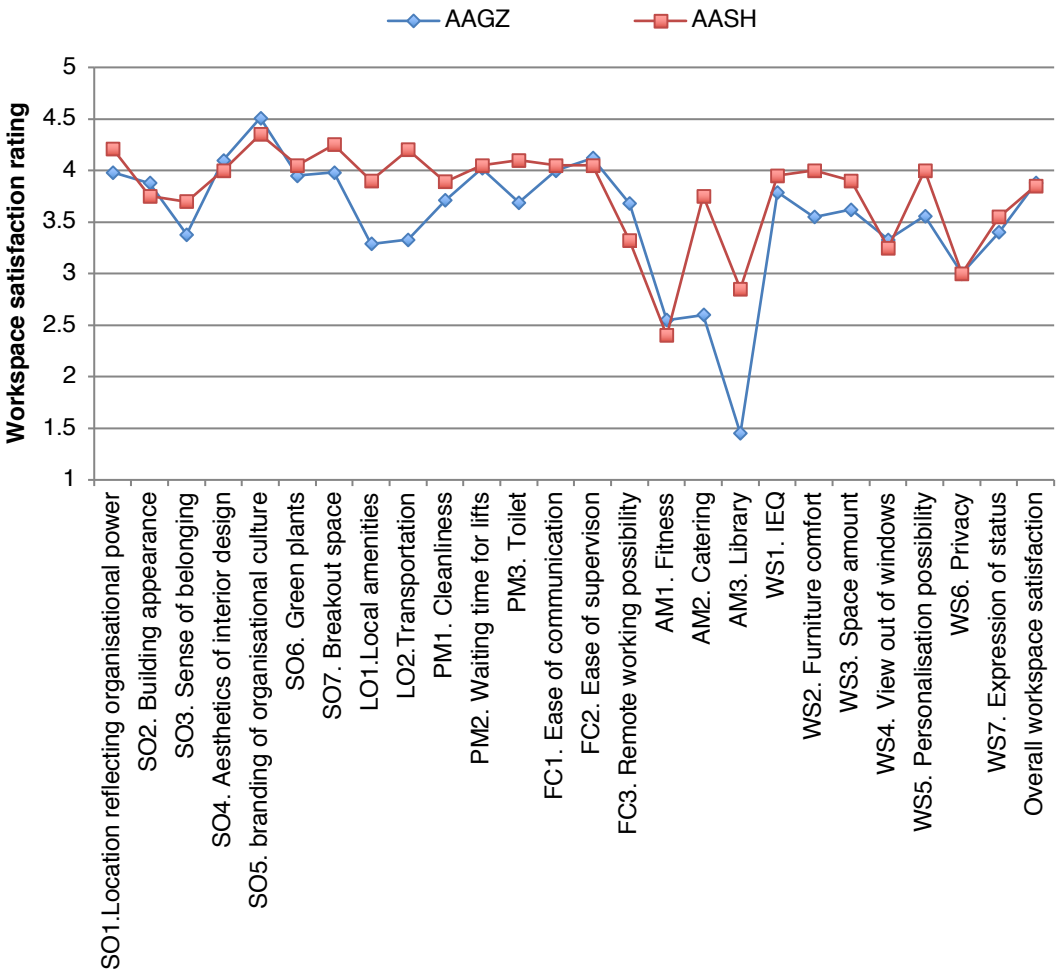


Figure 6.7 Comparison of workspace satisfaction: AAGZ office vs. AASH office (AAGZ: n= 42; AASH: n=20)

Despite the differences in the satisfactions with the above workspace items, there was no significant difference in employees' overall workspace satisfaction (AAGZ mean=3.88, SD=0.79; AASH mean=3.85, SD = 0.81) and forgiveness (AAGZ mean=1.08, SD=0.22; AASH mean=1.01, SD=0.20) between the two offices.

6.3.5 Workspace expectations

Correlation test (Table 6.3) results show that most survey workspace items (except sense of belonging, branding of organisational culture, transportation, catering and library) had significant correlations with the overall workspace satisfaction of AAGZ employees.

Table 6.3 Comparison of workspace expectations: AAGZ office vs. AASH office
Based on the correlations between workspace variables and overall workspace satisfaction

Workspace variables	Spearman's rho	
	AAGZ (n=42)	AASH (n=20)
SO1.Location reflecting organisational power	.421**	
SO2. Building appearance	.409**	.562**
SO3. Sense of belonging		
SO4. Aesthetics of interior design	.579**	.487*
SO5. Branding of organisational culture	.531**	.513*
SO6. Green plants	.420**	
SO7. Breakout space	.601**	.544*
LO1.Local amenities	.394*	
LO2.Transportation		
PM1. Cleanliness	.436**	
PM2. Waiting time for lifts	.700**	.465*
PM3. Toilet	.346*	
FC1. Ease of communication	.584**	
FC2. Ease of supervision	.332*	
FC3. Remote working possibility	.618**	
AM1. Fitness facilities	.420**	
AM2. Catering		
AM3. Library		
WS1. IEQ	.435**	
WS2. Furniture comfort	.435**	
WS3. Space amount	.467**	
WS4. View out of windows	.489**	
WS5. Personalisation possibility	.599**	
WS6. Privacy	.500**	
WS7. Expression of status	.620**	

Note: *p<0.05, **p<0.01; insignificant correlations are omitted in the table.

Table 6.4 Comparison of variance in overall workspace satisfaction explained by the six workspace component: AAGZ office vs. AASH office

Workspace components	Standardised Regression coefficient β	
	AAGZ (n=42)	AASH (n=20)
Social environment	.191	.496
Workstation quality	.372**	.389
Property management	.046	.280
On-site amenities	-.064	.352
Location	-.184	.152
Functional comfort	.597***	.218
Variation explained R^2	.661***	.303

Note: *p<0.05, **p<0.01, ***p<0.001. Regression method: Enter.

But in AASH office, the number of workspace elements associated with employees' overall workspace satisfaction was fewer. Most of them were in the category of *Social environment*. The workspace expectations of employees in the two offices were common in terms of buildings appearance, aesthetics of interior design, breakout space, waiting time for lifts and privacy.

Linear regression analysis was further conducted to determine the relative importance of different workspace components to overall workspace satisfaction (Table 6.4). The results show that for AAGZ employees, *Functional comfort* (β =0.597) and *Workstation quality* (β =0.372) were the most important. However, for AASH employees, none of the components had significant correlation with overall workspace satisfaction.

6.3.6 Summary of the case study

The cultural values of AA employees showed different orientations from the national culture in regard to *Power Distance*, *Masculinity* and *Individualism*. A stronger preference for inequality and a more masculine and individualistic tendency were found amongst respondents in this study. Yet, the perceived organisational cultures of the two offices were consistent.

The design outcome showed similarly high level of satisfaction with most of surveyed workspace items. Unsatisfactory factors were mainly amenities. In particular, the satisfaction with fitness facilities and library in the two offices were both low due to the lack of corresponding facilities. Some of the differences in employees' workspace satisfaction, but not all, between the two offices were explainable based on their different spatial

configuration. It is possible that cultural aspects also have played their roles in it.

It is striking to find that, employees in the two offices had different workspace expectations. Whereas AAGZ employees' overall workspace satisfaction were correlated with nearly all the survey workspace items, the overall workspace satisfaction of employees in AASH office seems less influenced by the satisfaction with specific workspace qualities. The difference is no in sync with cultural differences as cultural difference between the two offices was found in *Power Distance* only. The reasons remain to be further examined.

It is also important to note that *Functional comfort* had the strongest regression coefficient for the overall workspace satisfaction of AAGZ employees. In particular, remote working possibility and had the second strongest correlations with overall workspace satisfaction after expression of status. This might be because in a social group with the strong *Power Distance*, escaping from rigid control becomes an attraction for employees.

6.4 Case study 2 – JJ Company

6.4.1 Background

JJ is a global leading supplier of commodity and healthcare products with over 130-years of history. It originated in U.S. According to the introduction of the company's PR manager in Guangzhou, the company values its employees and aims to create a family-like work environment. The study was conducted in the administrative department of the company's Shanghai office and the branch office in Guangzhou in the summer of 2015.

6.4.2 Physical space

6.4.2.1 The Shanghai office

JJ Shanghai (JJSH) office is located in a class-A multi-tenant building in Xujiahui -- a traditional business centre. Nearby amenities include shopping centres, restaurants, banks and convenience stores. Two subway stations are available within 15 minutes' walk. Company JJ occupies three floors in the building (fourth to sixth floor). The fourth floor serves as shared space consisting of a reception area, an exhibition lounge, a canteen, a café bar and number of meeting rooms. To use the meeting rooms, employees need to make a reservation. The fifth and sixth floors are work area.

Figure 6.8 shows the layout of the fifth floor. The workspace is primarily open-plan.

Department managers are allocated in cellular rooms with a glass wall facing the open-plan work area of their team members. A number of meeting rooms and collaboration space close to workstations are available on the floor.

The status of employees is reflected by workstation types and accessibility to windows. Only directors and department heads are accommodated in private rooms with window views while middle managers are accommodated in smaller rooms in the dark inner area. Ordinary employees are located in the open-plan area and the head of each working group is assigned to the desk next to windows.

The types of workstations vary across departments. 2/3 of workstations in the open-plan area are “L” shape with high partitions (1.5m) in three directions. And 1/3 of workstations are rectangular shape with mid to high par high partitions (1.2m) in the front, left and right. File cabinets are arranged next to workstations along corridors.

Figure 6.8 Floor plan of the JJSH office
(Source: drawn by Daibin Xie based on the office map provided by the JJSH office)

Building appearance

Exhibiton launge

Café bar and kitchen

Workstations

Canteen

Figure 6.9 Exterior and interior appearance of the JJSH office
(Source: building appearance, https://image.baidu.com; others, photograph by Daibin Xie)

Like AA, the company also uses colours to create organisational identity. Because the main business is personal care products and healthcare devices, the company uses red colour to express their core value -- “caring about life”. The colour is widely used in the partitions of workstations, chairs and walls. In addition, an exhibition lounge is designed to show organisational history and values through pictures or videos.

6.4.2.2 The Guangzhou office

According to the interview with the PR manager of the company, JJ Guangzhou office (JJGZ) originally was owned by a Chinese biotechnology company but purchased by JJ in 2012. The building site is located in an industrial park together with its factory, far from the city centre (about 40-minitute drive). The location has caused same inconvenience in commuting. To solve the problem, JJGZ office provides shuttle buses for employees to commute between the office and city centre in the morning and evening.

The building has three floors. The first floor has an entrance hall, a canteen, a healthcare room and a storage space. The second floor is the R&D centre consisting of mainly a laboratory space. The third floor is the office studied by this research with 52 engineers and administrative staff working in it. Figure 6.10 shows the floor plan of the office.

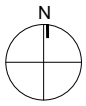


Figure 6.10 Floor plan of JJGZ office
(Source: drawn by Daibin Xie based on the office map provided by the JJGZ office)

Building appearance

Open-plan working area

Kitchen & breakout space

Workstations

Canteen

Meeting room

Figure 6.11 Exterior and interior of the JJGZ office
(Source: building appearance, provided by the JJGZ office; others, photograph by Daibin Xie)

Like JJSH office, the workspace is designed as open-plan office with rooms of managers and senior engineers along windows. Each room has a glass wall facing the work area of ordinary employees. “L” shape workstations with mid to high partitions (1.2m) along two arms are used in the open-plan area. File cabinets are arranged next to workstations along corridors. Meeting rooms are located in a separated area but close to workstations.

The colours of interior design in public area follow the standard of JJ Company. However, in the open-plan working area, there are few symbols of organisational identity.

6.4.2.3 Comparison of the two offices

The characteristics of the two offices are summarised in Table 6.5. In many aspects, these two offices are different:

1) Most obviously, they are different in location and building type.
2) The Shanghai office has higher density than the Guangzhou office.
3) The two offices place the office of mid-level managers in different space. While the Guangzhou office locates all managers alongside the windows, the Shanghai office locates middle managers in the dark inner side.
4) The Guangzhou office has a larger share of supporting space for meeting rooms, kitchen and breakout space, and storages. This is because most supporting space in the Shanghai office is centrally arranged on another floor.
5) Workstations in the Shanghai office have a greater enclosure level with higher and more partitions.
6) The expression of organisational culture and organisational identity seems stronger in the JJSH office than in the JJGZ office due to their different history.

Regarding employees' personalisation behaviour, again the results showed that employees in Shanghai might have greater preferences for displaying photos of families or friends and putting personal care items on the desk. At the same time, there were more employees in Shanghai displaying trinkets such as dolls, presents or toys, and merit certifications on desks.

Despite the differences, there are still some similarities between the two offices, for instance:

1) Both use open-plan layout with cellular rooms along sides of the open-pan area;
2) Both office place shared facilities such as meeting rooms close to entrance. To reach the rooms of senior employees or managers, visitors have to walk through the shared area and the open-plan area.

Table 6.5 Comparison of workspace parameters: JJGZ office vs. JJSH office

Workspace parameters		JJGZ	JJSH
Building and location			
Location		2. Industrial park	1. Business centre or CBD
Accessibility		2. City bus or company shuttle bus	3. Bus + subway
Building type		5. Non-office building	2. Class-A building
Layout and interior design			
Net interior area of the visited flood (m^2)		540	1688
Desk number planed on the visited flood		54	220
Net interior area per desk (m^2)		10.0	6.8
Office type		2. Open-plan office with cellular rooms along sides	2. Open-plan office with cellular rooms along sides
Place of management	Top managers	2. Separate from employees	2. Separate from employees
	Middle managers	1. Close to employees	1. Close to employees
Visual accessibility to employees	Top managers	1. Not available	1. Not available
	Middle managers	2. Available	2. Available
Access to windows		1. Superiors have the priority	2. Ordinary employees have the priority
Workspace area / desk (m^2)	Top managers	17.6	24.4
	Middle managers	10.2	11.7
	Ordinary employees	4.8	3.9
Place of meeting rooms		1. Close to workstations	1. Close to workstations
Expression of organisational identity		2. Perceivable	3. Distinctive
Colours of interior design		4. Neutral	3. Warm
% of enclosed rooms		22%	16%
% of open-plan space		32%	54%
% of floor-based support area		40%	16%
% of primary circulation		6%	13%
Availability of Amenities			
Breakout space		3. Good	3. Good
Catering		3. Good	3. Good
Canteen		2. Available	2. Available
Fitness facilities		1. Not available	1. Not available
Library and training space		1. Not available	2. Available
Shower room		1. Not available	2. Available
Nursing room		1. Not available	2. Available
Workstation			
Shape		1. “L” shape	1. “L” shape
Partition height		2. Low	3. High
Partition direction		3. Two arms of “L” shape	4. Front, left, right

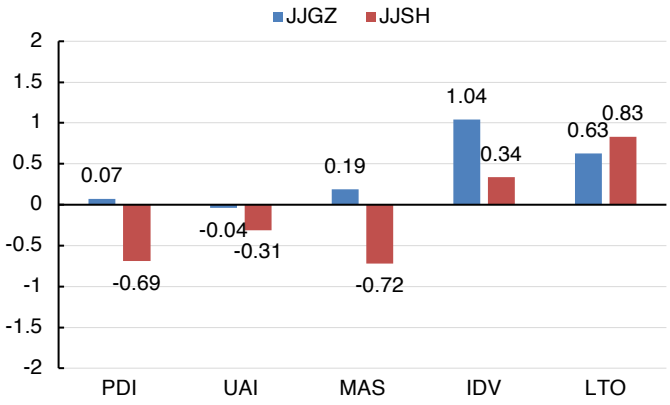
Table 6.6 Comparison of personalisation frequency: JJGZ office vs. JJSH office
(Based on 20 desks)

	Photo	Artwork	Trinket	Plant	Gadget	Self-care	Merit	Work accessory	Total
JJGZ	4	2	1	4	1	9	0	17	38
JJSH	9	2	11	4	3	16	4	18	67

6.4.3 Employees' cultural values and perceived organisational culture

The mean scores show that employees in both offices had an individualistic culture. But employees in Guangzhou were more individualistic. The finding is opposite to the regional culture of Guangzhou found in *Study 1*.

Mann-Whitney U test results showed that the cultural values of JJ employees in Guangzhou and Shanghai were significantly different in terms of *Power Distance* (PDI), *Masculinity* (MAS) and *Individualism* (IDV). Employees in the Guangzhou office had a culture with stronger PDI, MAS and IDV.



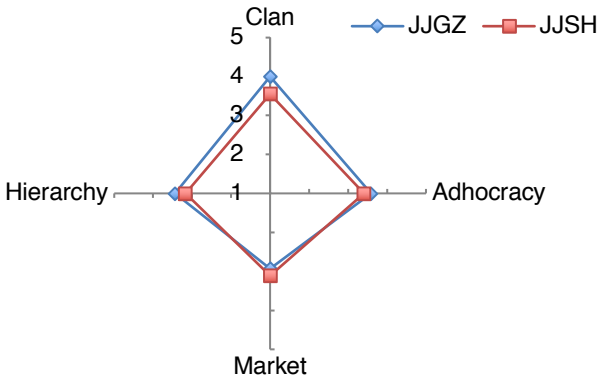
Mann-Whitney U test		
	Z	Sig. (2-tailed)
PDI	-2.198	.028*
UAI	-.861	0.389
MAS	-3.115	0.002**
IDV	-2.609	0.009**
LTO	-0.861	0.388

Note: *p<0.05, **p<0.01

PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS =Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index

Figure 6.12 Comparison of employees' values: JJGZ office vs. JJSH office
(JJGZ: n= 27, JJSH: n=29)

Mann-Whitney U test result show that there was no significant difference in employees perceived organisational culture between JJGZ office and JJSH office. They both were dominated by the characteristic of *Clan*.



Mann-Whitney U test

	Z	Sig. (2-tailed)
Clan	-1.803	.071
Adhocracy	-0.34	0.973
Market	-.59	0.576
Hierarchy	-.968	0.333

Note: *p<0.05, **p<0.01

Figure 6.13 Comparison of organisational culture: JJGZ office vs. JJSH office (JJGZ: n= 27; JJSH: n=29)

6.4.4 Workspace satisfaction and forgiveness

The mean scores of workspace satisfaction showed that in JJSH office, there was no unsatisfactory factor. Employees were satisfied with most workspace variables except eight items, including sense of belonging, green plants, local amenities, fitness facilities, catering, library, view out of windows and privacy. In these items, they held a neutral attitude. However, Guangzhou employees were satisfied with eight items only, namely branding of organisational culture, breakout space, cleanliness, waiting times for lifts, toilet, indoor environment quality, furniture comfort, and expression of status. Unsatisfactory factors included transportation, fitness facilities and library.

Mann-Whitney U test result shows that in four items, the satisfaction ratings of JJGZ employees were significantly lower than those of JJSH employees. The items are:

1) Green plants (JJGZ mean=3.41; JJSH mean=4.00; z=-2.543, p<0.05);

2) Local amenities (JJGZ mean=2.58; JJSH mean=3.34; z=-2.502, p<0.05);

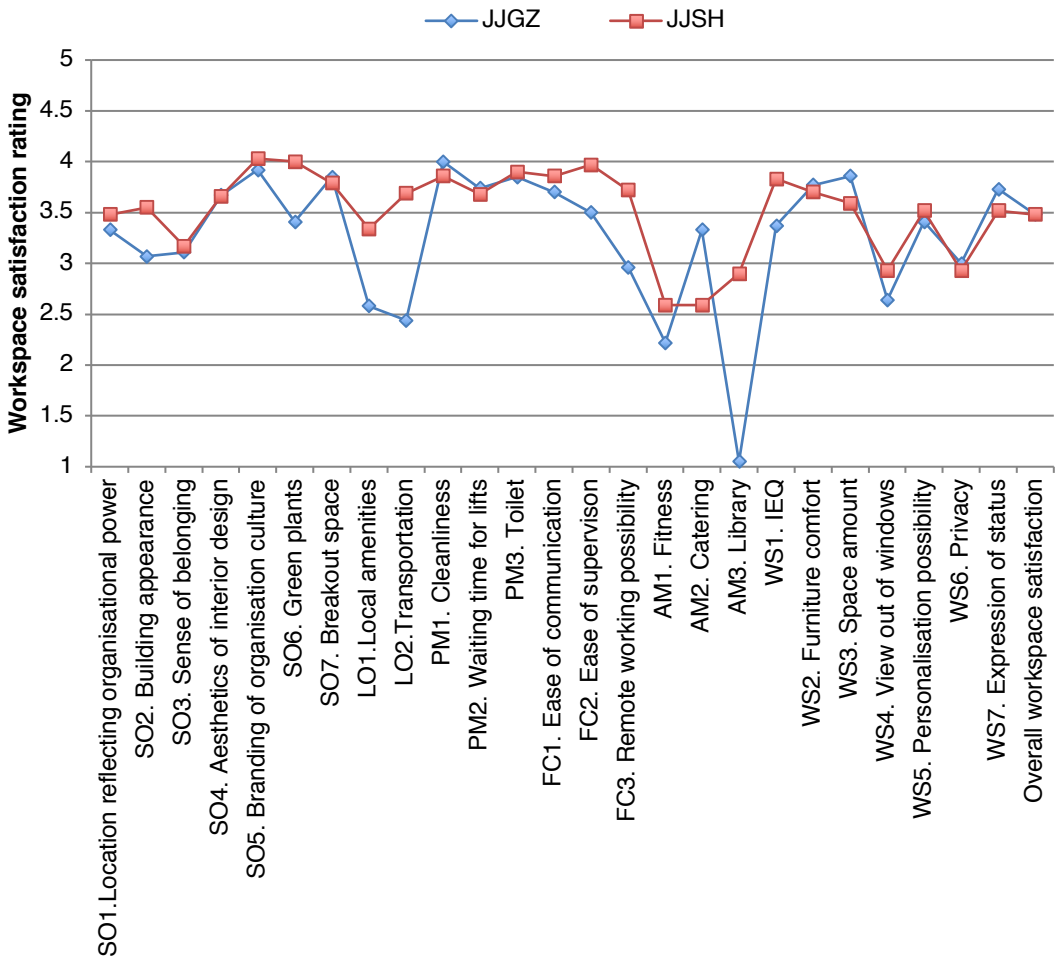


Figure 6.14 Comparison of workspace satisfaction: AAGZ office vs. AASH office (JJGZ: n = 27; JJSH: n =29)

3) Transportation (JJGZ mean=2.44; JJSH mean=3.69; z=-4.470, p<0.001);

4) Remote working possibility (JJGZ mean=2.96; JJSH mean=3.72; z=-2.526, p<0.05).

It appeared that the influence of location on employees' workspace satisfaction was significant. The location at a suburban area had lowered JJGZ employees' satisfaction with life and transport convenience provided by the site.

But in terms of catering, the satisfaction level of Guangzhou employees was higher than their Shanghai counterparts (JJGZ mean=3.33; JJSH mean=2.59; z=-2.556, p<0.05) due to the fact that there is no canteen in the Shanghai office.

There was no significant difference in employees' overall workspace satisfaction (JJGZ mean=3.48, SD =1.01; JJSH mean=3.48, SD=1.06). In terms of forgiveness, the mean scores show that the Shanghai employees were less tolerant of workspace shortcomings, but the difference was not significant statistically (Guangzhou: mean=1.05, SD=0.29; Shanghai: mean=0.98, SD=0.28).

6.4.5 Workspace expectation

Correlation analysis (Table 6.7) showed that the workspace expectations of employees in two offices were common in many aspects.

Table 6.7 Comparison of workspace expectations: JJGZ office vs. JJSH office
Based on the correlations between workspace variables and overall workspace satisfaction

Workspace variables	Spearman's rho	
	JJGZ (n=27)	JJSH (n=29)
SO1.Location relative to organisational power		.559**
SO2. Building appearance		.495**
SO3. Sense of belonging	.519**	.738**
SO4. Aesthetics of interior design	.399*	.500**
SO5. Branding of organisational culture	.545**	.429*
SO6. Green plants	.443*	.657**
SO7. Breakout space	.516**	.806**
LO1.Local amenities		
LO2.Transportation		.413*
PM1. Cleanliness		.716**
PM2. Waiting time for lifts	.423*	.490**
PM3. Toilet	.495**	.730**
FC1. Ease of communication		.449*
FC2. Ease of supervision		.397*
FC3. Remote working possibility		
AM1. Fitness facilities		
AM2. Catering	.512**	
AM3. Library		
WS1. IEQ	.723**	.554**
WS2. Furniture comfort	.770**	.638**
WS3. Space amount	.520*	.690**
WS4. View out of windows	.496*	.451*
WS5. Personalisation possibility		.635**
WS6. Privacy	.618**	.523**
WS7. Expression of status	.570**	.462*

Note: *p<0.05, **p<0.01; insignificant correlations are omitted in the table.

Table 6.8 Comparison of variance in overall workspace satisfaction explained by six workspace components: JJGZ office vs. JJSH office

Workspace components	Standardised regression coefficients β	
	JJGZ (n=27)	JJSH (n=29)
Social environment	.677**	.278
Workstation quality	.630**	.594**
Property management	.492*	.395
On-site amenities	.428*	.466
Location	-.354	.327
Functional comfort	.057	-.106
Variation explained R^2	.511**	.521**

Note: *p<0.05, **p<0.01, ***p<0.001. Regression method: Enter.

The overall workspace satisfaction of JJGZ employees had significant correlations with five *Social environment* variables (sense of belonging, aesthetics of interior design, branding of organisational culture, green plants and breakout space), two *Property management* variables (toilet and waiting time for lifts), six *Workstation quality* variables (IEQ, furniture comfort, space amount, view out of windows, privacy and expression of status) and catering. The overall workspace satisfaction of JJSH employees, however, had significant correlations with most workspace variables except local amenities, remote working possibility, and three amenities variables.

Linear regression models (Table 6.8) show that for JJGZ employees, *Social environment* had the strongest regression coefficient on overall workspace satisfaction (β = 0.677). It was followed by *Property management* (β = 0.492), *Amenities* (β = 0.428) and *Workstation quality* (β = 0.372). In the JJSH office, employees' overall workspace satisfaction was most importantly influenced by *Workstation quality* (β =0.594) while the regression coefficients of other workspace components were insignificant. This is might be because the less masculine culture of JJSH employees. According to the literature, in less masculine culture, employees tend to emphasis on workspace quality while the social respects of workspace, e.g. personal status, social recognition are less concerned (Hofstede, 2008).

6.4.6 Summary of the case study

In this case study, the cultural values of employees in both offices generally followed the trend of regional culture except in the dimension of *Individualism*. It appeared that the cultural difference within JJ Company was bigger than that of AA Company. Due to different

origins. , the two offices in this case study were different in many aspects, ranging from location to interior design and space planning, which might partially account for the differences in workspace satisfaction. But the differences in workspace settings did not result in differences in overall workspace satisfaction and forgiveness.

Again, it is striking to find that employees in the two offices have very different workspace expectations. Whereas JJSH employees' overall workspace satisfaction was associated with satisfaction with nearly all the survey workspace items except amenities (both local and on-site) and remote working, the overall workspace satisfaction of JJGZ employees was associated with fewer workspace variables, mainly in categories of *Social environment* and *workstation quality*.

6.5 Case study 3 – TT Company

6.5.1 Background

TT is a Chinese company specialised in 3D graphic design and virtual reality. The company was founded in Guangzhou in 2004. According to the introduction of its owner, the company is highly market-focused. Employees work overtime very often in order to meet the deadline of clients, and cheap service charge is their competitive advantage. The survey was conducted in the company's headquarter office in Guangzhou and the branch office in Shanghai in the summer of 2016.

6.5.2 Physical space

6.5.2.1 The Shanghai office

TT Shanghai (TTSH) office was set up in 2015, located in the city centre with two subway lines connecting to it. The company's main reason in choosing the site is being close to clients -- there are several architectural design companies nearby. 20 employees work for TTSH office (Including two directors). Figure 6.15 shows the floor plan.

The main work area is open-plan. At one end is an enclosed room occupied by two directors. It has a glass wall facing the open-plan area. Rectangular desks without partition are arranged in rows and employees sit face to face. In the centre of the open space there is a small sofa for clients to sit. File cabinets are arranged next to workstations along corridors.

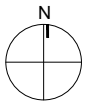


Figure 6.15 Floor plan of the TTSH office
(Source: provided by the TTSH office)

Building appearance

Workstations

Open-plan working area

The sofa area

The office of managers

Figure 6.16 Exterior and interior appearance of the TTSH office
(Source: photograph by Daibin Xie)

The company does not have guidelines or standards for workspace design. Thus, the design decisions were basically made by the managing director with a wish to give employees a natural and healthy environment, according to the interview with him.

6.5.2.2 The Guangzhou office

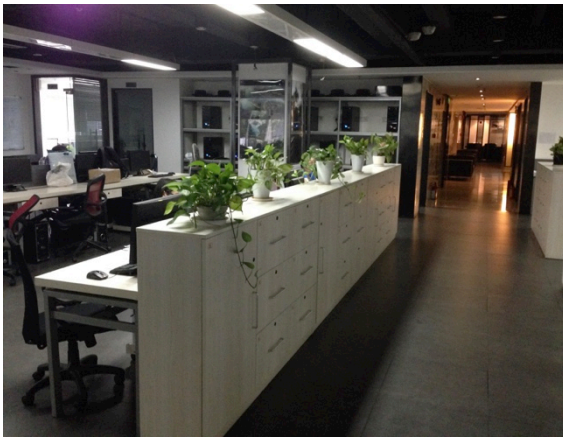
TT-Guangzhou (TTGZ) office is away from the city centre but close to one of the best architectural schools in China. The office occupied a whole floor in a multi-tenant Class-B high-rise office building, with a capacity of 140 desks. Figure 6.17 shows the floor plan.

The office has two open-plan areas, one for technicians and the other for administrative and marketing staff. The desks are all rectangular, having no partition. File cabinets are arranged along main corridors. Only the owner of the company and two directors have private rooms. The HR manager and an accountant share an enclosed room. All these rooms are arranged together in the southeast corner of the office.

The office assigns a great part of space as exhibition area to show their technology, including a 3D demo room, an exhibition room and a small meeting room. There is no formal meeting space for over 4 persons in the office.

Figure 6.17 Floor plan of the TTGZ office
(Source: drawn by Daibin Xie based on the floor plan of the building)

Building appearance



Open-plan working area

3D demo room

Breakout space

worksations

Figure 6.18 Exterior and interior of the TTGZ office

（Source: photograph by Daibin Xie）

The number of amenities in the office few. Only a small kitchen near toilet and two sofas are available for employees. The interior design can be regarded as stylish and neat. The ceiling is painted with black colour, and the floor is grey. Desk and filling cabinets are white.

Table 6.9 Comparison of workspace parameters: TTGZ office vs. TTSH office

Workspace parameters		TTGZ	TTSH
Building and location			
Location		3. City area close to clients	3. City area close to clients
Accessibility		3. Bus + subway	3. Bus + subway
Building type		3. Class B office building	3. Class B office building
Layout and interior design of the survey floor			
Net interior area of the visited flood (m^2)		874	80
Desk number planed on the visited flood		133	22
Net interior area per desk (m^2)		6.6	3.6
Office type		3. Mainly open-plan	3. Mainly open-plan
Place of management	Top managers	2. Separate from employees	1. Close to employees
	Middle managers	1. Close to employees	1. Close to employees
Visual accessibility to employees	Top managers	1. Not available	2. Available
	Middle managers	2. Available	2. Available
Access to windows		3. Everyone can access windows equally	3. Everyone can access windows equally
Workspace area / Desk (m^2)	Top managers	24	9
	Middle managers		
	Ordinary employees	3.9	2.7
Place of meeting rooms		2. Separate from the working area but on the same floor	4. Having no meeting room in the office
Expression of organisational identity		2. Perceivable	2. Perceivable
Colours of interior design		1. Cool	2. Vivid
% of enclosed rooms		10%	23%
% of open-plan space		56%	68%
% of floor-based support area		29%	9%
% of primary circulation		5%	0%
Availability of Amenities			
Breakout space		2. Available	1. Not available
Catering		2. Available	1. Not available
Canteen		1. Not available	1. Not available
Fitness facilities		1. Not available	1. Not available
Library and training space		1. Not available	1. Not available
Shower room		1. Not available	1. Not available
Nursing room		1. Not available	1. Not available
Workstation			
Shape		2. Rectangular	2. Rectangular
Partition height		1. No partition	1. No partition
Partition direction		1. No partition	1. No partition

Table 6.10 Comparison of personalisation frequency: TTGZ office vs. TTSH office (Based on 20 desks)

	Photo	Artwork	Trinket	Plant	Gadget	Self-care	Merit	Work accessory	Total
TTGZ	0	0	3	6	7	11	0	7	34
TTSH	0	0	0	1	2	5	0	2	10

6.5.2.3 Comparison of the two offices

Table 6.9 compares the characteristics of TTGZ office and TTSH office. They have similar considerations in choosing locations and some similar design patterns. For instance, the two offices are all open-plan and only directors have private rooms. In addition, there are few amenities or support area in both offices.

The differences between the two offices are also significant:

1) The size of the two offices are different.

2) They chose different aesthetic languages. This has resulted in different interior appearances.

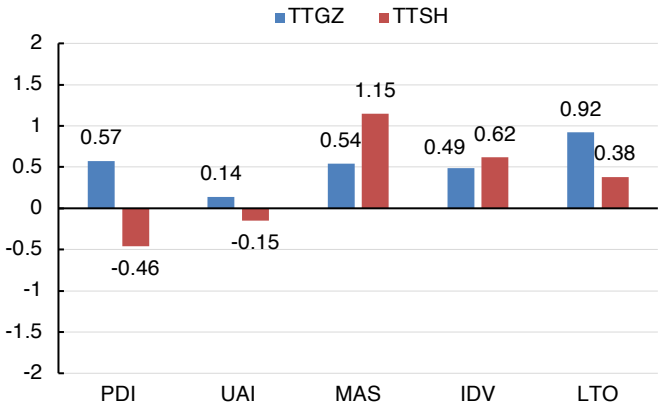
3) Their spatial patterns are different. While in the TTSH office the room of chief managers is arranged in the end far from the entrance, in the TTGZ office the rooms of directors and the company owner are close to the entrance.

Regarding personalisation, the result of space coding results show that employees in the TT Company rarely displayed photo and artworks on desks, although employees in the TTGZ office displayed more plants, self-care items and work accessories on their desks than their counterparts in Shanghai.

6.5.3 Employees' cultural values and perceived organisational culture

In contrast to the national trends revealed in *Study 1*, employees' values in both offices showed an individualistic and masculine tendency (Figure 6.19). But employees in the TTGZ office had a stronger *Power Distance Index* than that in the TTSH office, which means that they are more tolerate for inequality. At the same time, employees in the TTGZ office had a weaker *Masculinity* tendency than their counterparts in the TTSH office, suggesting that they might pay more attention to workspace comfort.

In regard to organisational culture, TTSH office showed more *Clan* and *Adhocracy* features than TTGZ office, which they were both stronger in *Hierarchy*.

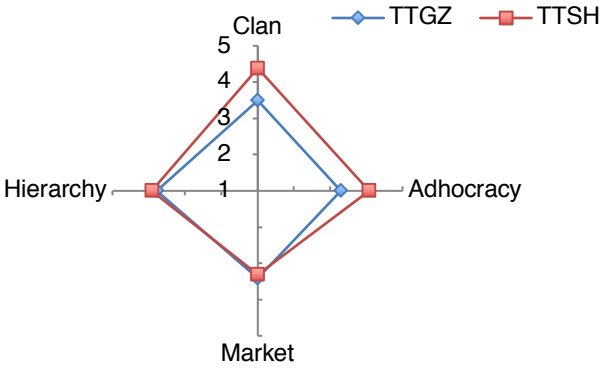


Mann-Whitney U test		
	Z	Sig. (2-tailed)
PDI	-2.144	.032*
UAI	-.590	0.555
MAS	-2.202	0.028*
IDV	- .447	0.655
LTO	-1.374	0.169

Note: *p<0.05, **p<0.01

PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index

Figure 6.19 Comparison of employees' values: TTGZ office vs. TTSH office
(TTGZ: n= 37, TTSH: n=13)



Mann-Whitney U test		
	Z	Sig. (2-tailed)
Clan	-2.779	.005**
Adhocracy	-2.244	0.025*
Market	-.319	0.749
Hierarchy	-.383	0.702

Note: *p<0.05, **p<0.01

Figure 6.20 Comparison of organisational culture: TTGZ office vs. TTSH office
(TTGZ: n= 37, TTSH: n=13)

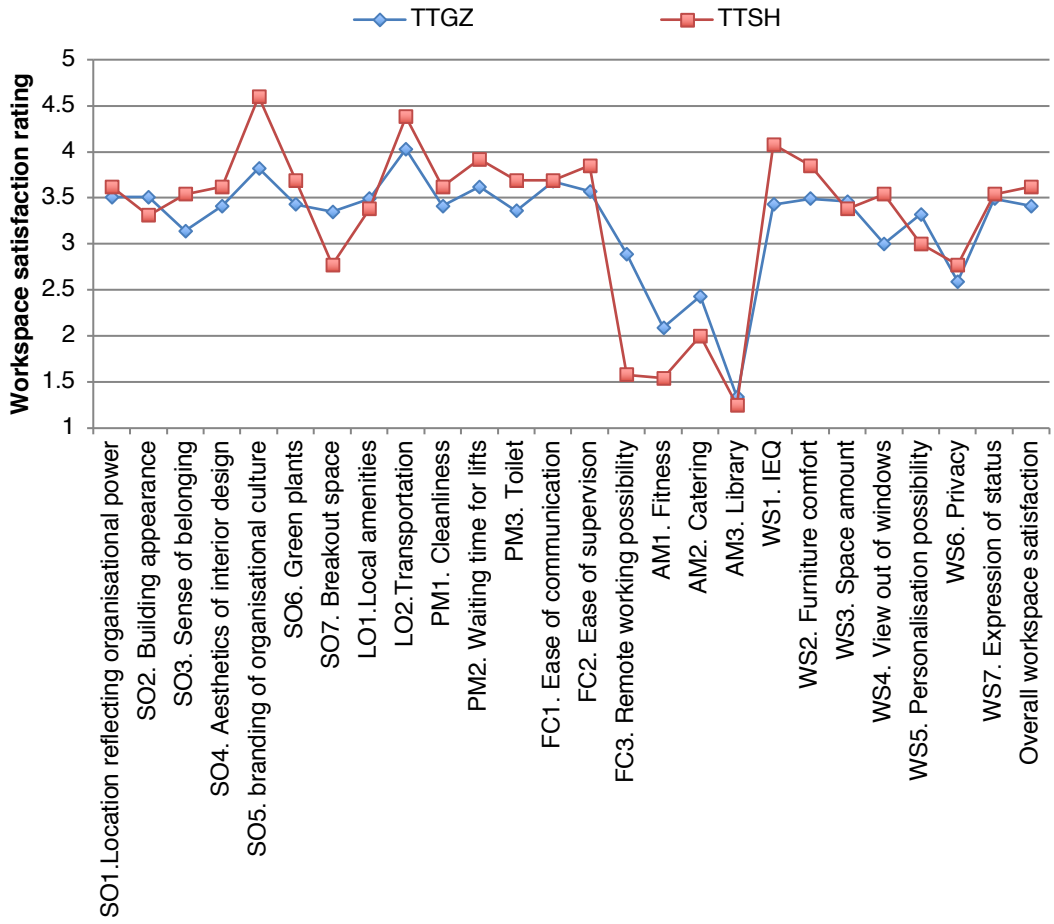


Figure 6.21 Comparison of workspace satisfaction: TTGZ office vs. TTSH office (TTGZ: n = 37, TTSH: n=13)

6.5.4 Workspace satisfaction and forgiveness

Figure 6.21 shows the mean scores of workspace satisfaction over various workspace variables in the TTSH office and the TTGZ office. TTSH employees were satisfied with most workspace variables except building appearance, breakout space, local amenities, and remote working possibility, space amount, personalisation possibility, privacy and amenities. However, in the TTGZ office, employees' satisfaction with most workspace variables fell in the range of neutral. Satisfactory factors in the TTGZ office included branding of organisational culture, transportation, waiting time for lifts, ease of communication and ease of supervision only. There is no canteen, fitness facilities and library in both offices. This resulted in their extremely low satisfaction ratings.

Mann-Whitney U test showed that in three items, the satisfaction of TTSH employees was significantly higher than that of TTGZ employees. These items were:

1) Branding of organisational culture (TTGZ mean=4.60, TTSH mean=3.82; z=-3.104, p<0.01);

2) Transportation (TTGZ mean=4.03, TTSH mean=4.38; z=-2.601, p<0.05)

3) IEQ (TTGZ mean=3.43, TTSH mean=4.08; z=-2.706, p<0.01)

But TTSH employees were less satisfied with remote working possibility (TTGZ mean=2.89, TTSH mean=1.58; z=-2.430, p<0.05).

There was no significant difference in employees' overall workspace satisfaction (TTGZ mean=3.41, SD =0.76; TTSH mean=3.62, SD=0.77) and forgiveness (TTGZ mean=1.03, SD =0.18; TTSH mean=1.08, SD=0.20).

6.5.5 Workspace expectation

Correlation analysis (Table 6.11) showed that the overall workspace satisfaction of TTGZ employees was significantly correlated with the satisfaction with four *Social environment* items (building appearance, aesthetics of interior design, green plants and breakout space), local amenities, toilet, waiting time of lifts, ease of supervision and all workstation qualities except IEQ. However, the overall workspace satisfaction of TTSH employees was correlated with the satisfaction with green plants and IEQ only.

Linear regression models (Table 6.12) were further used to determine the relative importance of different workspace components to overall workspace satisfaction. The results showed that *Workstation quality* (β = 0.417) had the most important regression coefficient with overall workspace satisfaction in the TTGZ office. However, for TTSH employees, the study failed to set up a regression model that could explain the variance of employees' overall workspace satisfaction.

6.5.6 Summary of the case study

The case study of TT Company shows an example that two offices of the same company have different workspace designs and different organisational cultures due to different development stages and the lack of consistent design standards. However, the differences did not result in much difference in employees' workspace satisfaction. Only in four items,

namely branding of organisational culture, transportation, IEQ and remote working possibility, was employees' satisfaction different between the two offices.

The analysis of employees' workspace preferences showed that the overall workspaces satisfaction of TTGZ employees was correlated with a great number of workspace variables. In particular, *Workspace quality* had the strongest influence. However, employees in the TTSH office tend to be less spatial concerned with spatial features.

Table 6.11 Comparison of workspace expectations: TTGZ office vs. TTSH office
Based on the correlations between workspace variables and overall workspace satisfaction

Workspace variables	Spearman's rho	
	TTGZ (n=37)	TTSH (n=13)
SO1.Location reflecting organisational power		
SO2. Building appearance	.382*	
SO3. Sense of belonging		
SO4. Aesthetics of interior design	.334*	
SO5. Branding of organisational culture		
SO6. Green plants	.500**	.689**
SO7. Breakout space	.427**	
LO1.Local amenities	.379*	
LO2.Transportation		
PM1. Cleanliness		
PM2. Waiting time for lifts	.433**	
PM3. Toilet	.567**	
FC1. Ease of communication		
FC2. Ease of supervision	.356*	
FC3. Remote working possibility		
AM1. Fitness facilities	.616**	
AM2. Catering	.341*	
AM3. Library		
WS1. IEQ		.554*
WS2. Furniture comfort	.454**	
WS3. Space amount	.380*	
WS4. View out of windows	.339*	
WS5. Personalisation possibility	.521**	
WS6. Privacy	.492**	
WS7. Expression of status	.569**	

Note: *p<0.05, **p<0.01; insignificant correlations are omitted in the table.

Table 6.12 Comparison of variance in overall workspace satisfaction explained by six workspace components: TTGZ office vs. TTSH office

Workspace components	Standardised regression coefficient β	
	TTGZ (n=37)	TTSH (n=13)
Social environment	.314	.933
Workstation quality	.417*	.911
Property management	.296	.421
On-site amenities	.191	.507
Location	.021	-.002
Functional comfort	.278	-.257
Variation explained R^2	.462*	.430

Note: *p<0.05, **p<0.01, ***p<0.001. Regression method: Enter.

The weak desire for the qualities of workspace in the TTSH office might be caused by its *Adhocracy* culture and employees' more masculine values. According to Cameron and Quinn (2006), *Adhocracy* culture stresses flexibility and growth and everything in the office is temporary. Therefore, in this type of culture, employees pay less attention to spatial qualities. Hofstede (2008), in addition, argued that people with masculine culture are less motivated by the quality of work-life environment.

6.6 Case study 4 – FF Company

6.6.1 Background

FF Company is also specialised in 3D virtual reality technology. It was founded in 2002 in Guangzhou, only two years earlier than TT, but has grown very fast. Now FF already has offices in eight different Chinese cities. Like TT, its early success benefited from proximity to the same architectural school. Because of this, the company are not interested in choosing a central location in cities. Instead, being close to clients is the company's main concern. However, while TT focuses on clients, FF is more employee-focused. Because working overtime is quite common in the 3D graphic design industry, employees' turnover rate is high. To improve the well-being of employees, FF Company has introduced a series of policies to reduce the working time and "humanise" workspace. In this study, the company's technology centre in Guangzhou and the branch office in Shanghai were surveyed in the summer of 2015 and 2016 respectively.

6.6.2 Physical space

6.6.2.1 The Shanghai office

FF Shanghai (FFSH) office is located in a class B office building away from city centre but close to an architecture school. There are several architecture design firms founded by the alumni of the architecture school nearby. The building is about 10 minutes' walk from the nearest subway station, and 5 minutes' walk from the nearest bus stop. FF occupied a whole floor in the building. Figure 6.22 shows the floor plan.

The office has capacity of 209 desks. Ordinary employees are placed in open-plan area along the windows while their managers are arranged in cellular rooms in the dark inside area surrounding the circulation core of the buildings. Two directors have private rooms at the northeast corner with good privacy. Workstations have only low partitions in the front. The office also has a big meeting room, two small meeting rooms, a library and a kitchen and breakout area on the floor. In addition, like TTGZ office, there is a 3D demo room in the office.

The interior design is characteristic. Blue, yellow and green, which represent the organisation's identity, are widely used on walls and furniture. The different colours are also used in desk partitions to distinguish working groups. A thematic feature -- "Bamboo" is applied to create a sense of natural environment, and to symbolises growth with a *Fengshui* consideration.

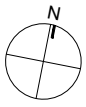
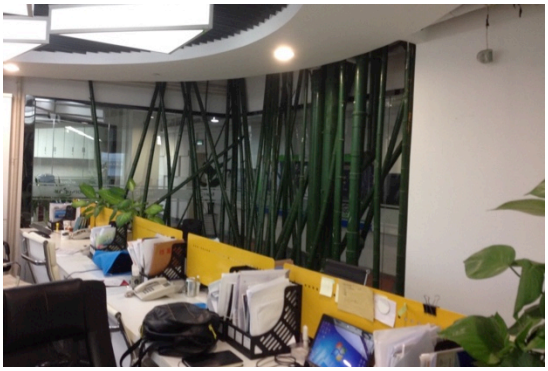


Figure 6.22 Floor plan of the FFSH office
(Source: provided by the FFSH office)

Building appearance



The banboo decoration

Open-plan working aera

Library

Reception

Kitchen

Figure 6.23 Exterior and interior of the FFSH office
(Source: photograph by Daibin Xie)

6.6.2.2 The Guangzhou office

The studied FF Guangzhou (FFGZ) office is in a campus with 5 minutes' walk from the nearest subway station and 3 minutes' walk to a bus terminus. The FFGZ office occupies a floor of the building. Figure 6.25 shows the floor plan.

The office is designed with a capacity of 205 desks. Based on the shape of the floor plan which is long and narrow, the layout is divided into six units, each accommodates a business department. Each department has 30-35 employees divided into 2 or 3 work groups. The

work areas of these departments are highly open. Only department managers have a private room located at a corner of the department space. Each room have glass walls facing the work area.

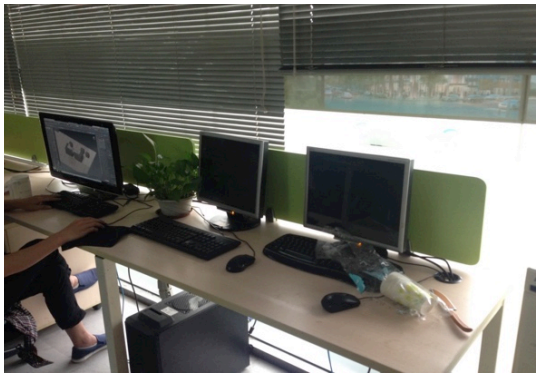
The director is arranged in a room in the deep corner of the Administrative department. To access him, visitors need to walk through a long corridor and the work area of the Administrative department.

Building apprearnce

Breakout space and kitchen

Open-plan working aera

The bamboo decoration



Worksations

Reception

Figure 6.24 Exterior and interior of the FFGZ office
(Source: photograph by Daibin Xie)

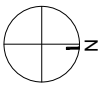


Figure 6.25 Floor plan of the FFGZ office
(Source: provided by the FFGZ office)

Amenities in the office include a breakout space along the corridor, a library and an Internet bar next to the reception area, a small kitchen and a small rest room next to the Administrative department in the east. There is also a big meeting room close to the entrance.

The interior design follows the standard of the company. But due to the influence of campus environment and the fact that the office is the oldest office of FF Company, the atmosphere is less formal compared to the FFSH office.

6.6.2.3 Comparison of the two offices

The physical settings of the FFGZ office and the FFSH office are compared in Table 6.13. These two offices are similar in many aspects such as the consideration of location choices, provision of amenities and furniture. In terms of layout, they all choose open-plan office, and the room of directors all are arranged in an area distant from the entrance. Meetings rooms are arranged close to the reception area.

But the difference is also significant. For example, although the two offices all adopt an open-plan design, constrained by floor plan, FFGZ office divides the floor space into six unites based on departments. Other differences may include:

1) In general, the FFGZ office has a higher density;

2) The FFSH office allocates relatively more space to enclosed rooms and support area, and has better amenities;

3) The interior design of FFSH office is more characteristic in regard to the branding of organisational culture than that of FFGZ office.

Table 6.13 Comparison of workspace parameters: FFGZ office vs. FFSH office

Workspace parameters		FFGZ	FFSH
Building and location			
Location		3. Other city area close to clients	3. Other city area close to clients
Accessibility		3. Bus + subway	3. Bus + subway
Building type		4. Low-end office building	3. Class B office building
Layout and interior design			
Net interior area of the visited flood (m^2)		960	1417
Desk number planed on the visited flood		203	209
Net interior area per desk (m^2)		4.6	6.8
Office type		3. Mainly open-plan	2. Open-plan with cellular rooms along sides
Place of management	Top managers	2. Separate from employees	2. Separate from employees
	Middle managers	1. Close to employees	1. Close to employees
Visual accessibility to employees	Top managers	1. Not available	1. Not available
	Middle managers	2. Available	2. Available
Access to windows		3. Everyone can access windows equally	2. Employees have the priority to access windows
Workspace area / desk (m^2)	Top managers	20.0	30.0
	Middle managers	9.7	11.6
	Ordinary employees	3.0	3.4
Place of meeting rooms		2. Separate from the working area but on the same floor	2. Separate from the working area but on the same floor
Expression of organisational identity		2. Perceivable	3. Distinctive
Colours of interior design		2. Vivid	2. Vivid
% of enclosed rooms		8%	17%
% of open-plan space		61%	46%
% of floor-based support area		14%	30%
% of primary circulation		17%	7%
Availability of amenities			
Breakout space		3. Good	3. Good
Tea rooms and kitchen		2. Available	3. Good
Canteen		1. Not available	1. Not available
Fitness facilities		1. Not available	1. Not available
Library		2. Available	2. Available
Shower room		1. Not available	1. Not available
Nursing room		1. Not available	1. Not available
Indoor green plants		2. Available	2. Available
Workstation			
Shape		2. Rectangular	2. Rectangular
Partition height		2. Low	2. Low
Partition direction		2. Front only	2. Front only

Table 6.14 Comparison of personalisation frequency: FFGZ office vs. FFSH office
(Based on 20 desks)

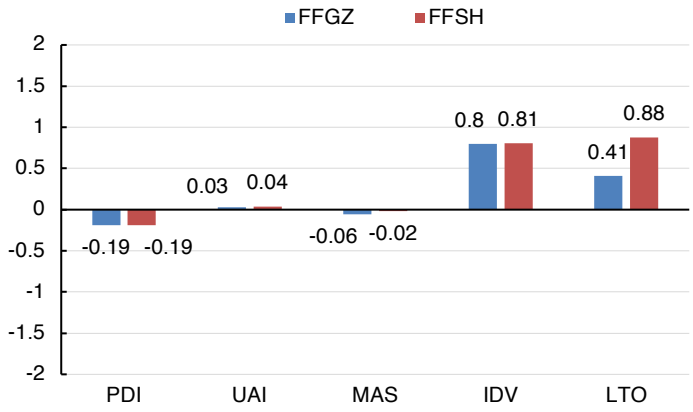
	Photo	Artwork	Trinket	Plant	Gadget	Self-care	Merit	Work accessory	Total
FFGZ	0	0	1	8	4	13	0	8	34
FFSH	0	1	3	1	5	18	0	7	35

Regarding personalisation, the coding results show that employees of FF Company rarely displayed photo and artworks on their desk. FFGZ employees displayed small plants on their desks while FFSH employees placed more self-care items on desks.

6.6.3 Employees' cultural values and perceived organisational culture

Data analysis shows that differing from the national culture, employees in both offices have strong individualistic culture. Mann-Whitney U test results show shows that the employees' cultures of these two offices are significantly different in terms of LTO. Employees in Guangzhou have a weaker *Long-term Orientation* tendency.

Mann-Whitney U test results showed that there was no significant difference in the perceived organisational culture between the two offices. *Clan* feature was the strongest in the organisational culture of both offices.

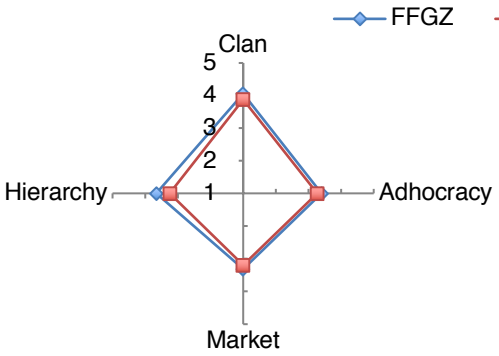


Mann-Whitney U test		
	Z	Sig. (2-tailed)
PDI	-.236	.813
UAI	-.181	.856
MAS	-.167	.867
IDV	-.221	.825
LTO	-2.198	0.028*

Note: *p<0.05, **p<0.01

PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index

Figure 6.26 Comparison of employees' values: FFGZ office vs. FFSH office
(FFGZ: n = 70, FFSH: n = 48)



Mann-Whitney U test		
	Z	Sig. (2-tailed)
Clan	-1.141	.254
Adhocracy	-.051	.617
Market	-.568	.570
Hierarchy	-1.963	.053

Note: *p<0.05, **p<0.01

Figure 6.27 Comparison of organisational culture: FFGZ office vs. FFSH office (FFGZ: n = 70; FFSH: n =48)

6.6.4 Workspace satisfaction and forgiveness

The mean scores of workspace satisfaction show that Shanghai employees held a neutral attitude toward most workspace items, but in terms of fitness, catering, library and privacy, FFSH employees were unsatisfied. FFGZ employees were unsatisfied with fitness facilities and catering, but they were satisfied with interior design, branding of organisational culture, breakout space, local amenities, transportation, ease of communication and supervision, furniture comfort and space amount.

Mann-Whitney U test result shows that in terms of building appearance, FFGZ employees were less satisfied than FFSH employees. However, in twelve items, Guangzhou employees' satisfaction was significantly higher than that of their counterparts in Shanghai.

Some differences can be explained based on the differences in spatial settings. For example, the differences in the satisfaction with the building appearance may be explained by the fact that the shanghai office is in a high-rise building while the Guangzhou office is in a low-rise office building. The different satisfaction with ease of supervision may relate to the difference in office layouts. In the FFGZ office, heads of work-groups within departments sit together with ordinary employees and employees can get feedbacks from their direct leader quickly and easily. But in the Shanghai office, because the organisational structure is flatten and business units are smaller, employees report to department managers in the glass rooms directly. This may have affected the supervision efficiency.

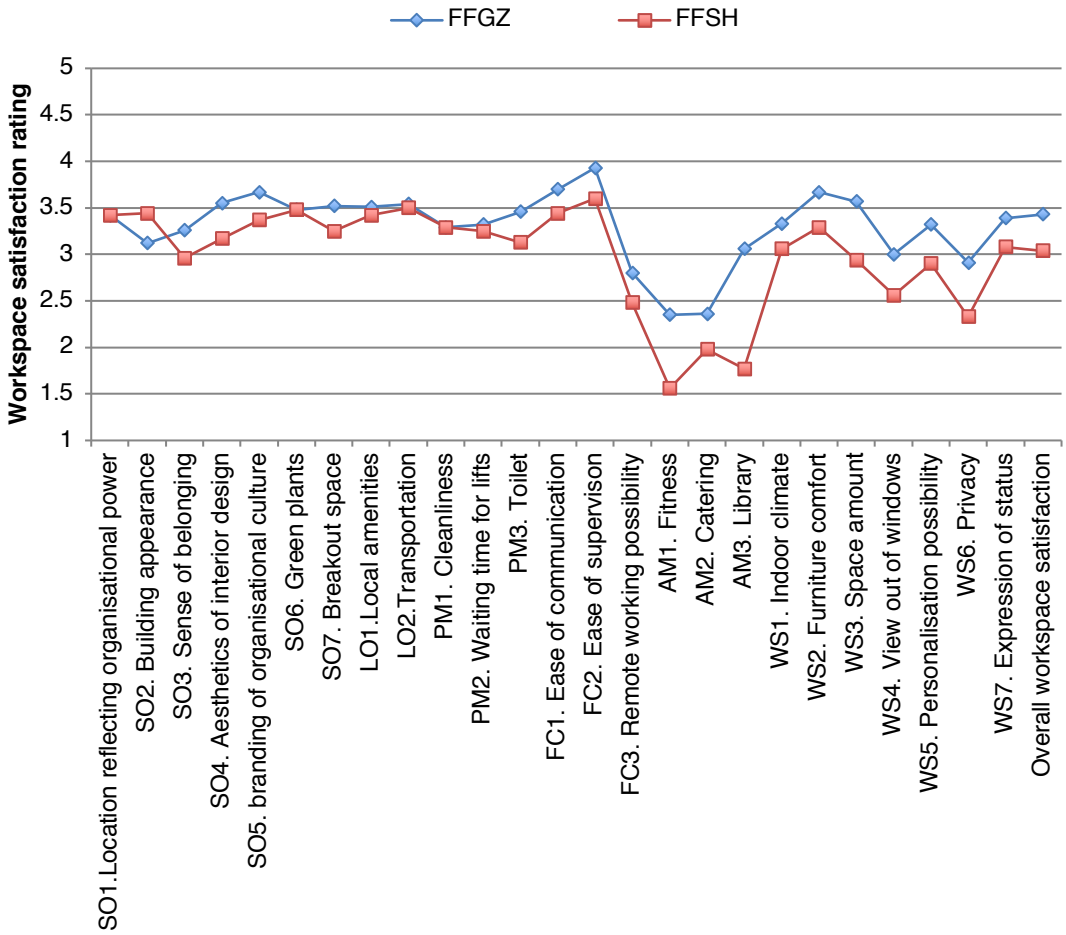


Figure 6.28 Comparison of workspace satisfaction: FFGZ office vs. FFSH office (FFGZ: n = 70; FFSH: n = 48)

In regard to toilet, fitness, library and indoor environment quality, the differences in user satisfaction may be caused by the differences in physical workspace settings. For example, both offices do not have fitness facilities and canteen, which resulted in the low satisfaction with these two items.

However, in terms of aesthetics of interior design and branding of organisational culture, while the Shanghai office is trendier than the Guangzhou office, it did not result in higher satisfactions. Further, while the furniture of the two offices are the same and the FFSH has a larger floor area per desk, employees in the FFGZ office still showed a higher satisfaction with space amount and furniture comfort. The influences of contextual factors thus can be suspected to explain the differences.

There was also significant difference in overall workspace satisfaction (Guangzhou

mean=3.43, SD =0.76; Shanghai mean=3.04, SD=0.90). FFGZ employees in general were more satisfied. But in terms of forgiveness, the difference was not significant (Guangzhou mean=1.06, SD =0.27; Shanghai mean=1.01, SD=0.29).

6.6.5 Workspace expectation

Correlation analysis results (Table 6.15) show that for FFGZ employees, their overall workspace satisfaction was correlated with building location, cleanliness, toilet, four variables in the category of *Social environment* (building appearance, sense of belonging, aesthetics of interior design and branding of organisational culture), and five in *Workstation quality* (IEQ, furniture comfort, space amount, privacy and expression of status).

The overall workspace satisfaction of FFSH employees was also significantly correlated with *Social environment variables* (location reflecting organisational power, building appearance, aesthetics of interior design, branding of organisational culture and breakout space), cleanliness, waiting time for lifts, and three *Workstation quality* variables (IEQ, furniture comfort and view out of windows). Workspace expectations in these two offices were common in terms of building appearance, cleanliness, indoor environment quality, and furniture comfort.

Component regressions (Table 6.16) were conducted to investigate the relative importance of different workspace components. The results show that the regression model created for FFGZ office could not explain the variance of FFGZ employees' overall workspace satisfaction. This suggests the strong influence of contextual factors in shaping employees' attitude towards their workspace in this office. But in Shanghai, *Social environment* appeared to have important influence on overall workspace satisfaction.

6.6.6 Summary of the case study

The FF case study demonstrates that although a standardised design had been introduced in the two offices, the satisfaction outcomes could still be quite different. Indeed, there are some differences in physical settings accounting for the differences of employees' satisfaction, but the lower satisfaction for issues such as furniture comfort, interior design aesthetics and expression of organisational culture in the Shanghai office seems difficult to explain simply by spatial differences. This might suggest the important influence of contextual factors on employees' workspace satisfaction. It is also possible that full open-plan offices were less preferred than department division as in the FFGZ office.

Table 6.15 Comparison of workspace expectations: FFGZ office vs. FFSH office
Based on correlations between workspace variables and overall workspace satisfaction

Workspace variables	Spearman's rho	
	FFGZ (n=70)	FFSH (n=48)
SO1.Location reflecting organisational power		.437**
SO2. Building appearance	.261*	.439**
SO3. Sense of belonging	.302*	
SO4. Aesthetics of interior design	.350**	.438**
SO5. Branding of organisational culture		.485**
SO6. Green plants		
SO7. Breakout space		.430**
LO1.Local amenities	.349**	
LO2.Transportation	.261*	
PM1. Cleanliness	.303*	.350*
PM2. Waiting time for lifts		.352*
PM3. Toilet	.351**	
FC1. Ease of communication		
FC2. Ease of supervision		
FC3. Remote working possibility		
AM1. Fitness facilities		
AM2. Catering		
AM3. Library		
WS1. IEQ	.293*	.581**
WS2. Furniture comfort	.480**	.346*
WS3. Space amount	.380**	
WS4. View out of windows		.319*
WS5. Personalisation possibility		
WS6. Privacy	.302*	
WS7. Expression of status	.480**	

Note: *p<0.05, **p<0.01; insignificant correlations are omitted in the table.

Table 6.16 Comparison of variance in overall workspace satisfaction explained by six workspace components: FFGZ office vs. FFSH office

Workspace components	Standardised regression coefficient β	
	Guangzhou (n=70)	Shanghai (n=48)
Social environment	.139	.694***
Workstation quality	.372**	.291
Property management	.144	.256
On-site amenities	.117	.299
Location	.106	.002
Functional comfort	-.072	.365
Variation explained R^2	.168	.515***

Note: *p<0.05, **p<0.01, ***p<0.00. Regression method: Enter.

The comparison of cultural values between employees in the two office shows that FFGZ employees had a stronger *Long-term Orientation* tendency. According to Hofstede (2008), people with *Long-term Orientation* culture will emphasise future success and are more tolerant of contemporary difficult situations. This may account for the higher satisfaction level of Guangzhou employees. In addition, according to the interview with the HR manager of FFGZ office, the Guangzhou office is the place where the company was first established, and many employees see it as the "holy place" of the company. This emotional tied may also result in the higher satisfaction of employees in the office. Evidence is that, in regression analysis, the satisfaction with workspace components cannot explain the variance of overall workspace satisfaction of FFGZ employees.

Workspace elements correlating with the overall workspace satisfaction of employees in the two offices mainly fall into the categories of *Social environment, Property management, Location,* and *Workstation quality*. *Function comfort* and *Amenities* were de-emphasised.

6.7 Cross-industry comparison

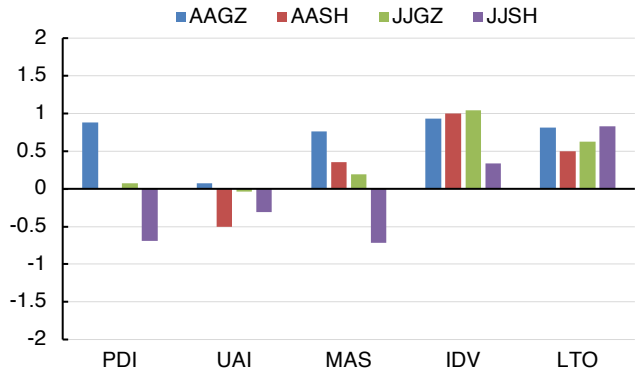
6.7.1 Within industry similarities and differences: Manufacturing

6.7.1.1 Employees' values

Kruskal-wallis H test shows (Figure 6.29) that the cultural values of respondents in the four offices were significantly different in *Power Distance, Masculinity* and *Individualism*. JJSH employees had the weakest *Power Distance,* and *Individualism* while AAGZ employees had the strongest *Power Distance* and *Individualism*. In terms of *Individualism,* the cultural scores of employees in the AASH office, the AAGZ office and the JJGZ office were close. In regard to Masculinity, the culture of respondents in the JJSH office appeared to be in the side of *Femininity*, the culture of respondents in the other three offices fell in the side of *Masculinity.* The results show that there is not homogeneous manufacturing culture. Values of employees in different offices may still vary.

Kruskal-wallis H test results (Table 6.17) show that while the organisational cultures of the four office all showed a dominant *Clan* feature, they were significantly different in the dimension of *Hierarchy*. The organisational culture of the AAGZ office had strongest *Hierarchy* characteristic amongst the four offices while the organisational culture of the JJSH office had lowest. The findings suggest that, while the cultures of manufacturing organisations in China generally are internally focused and values flexibility, different

organisations may have different stress on stability.



Kruskal-wallis H Test		
	Chi-square	Asymp.Sig.
PDI	27.402	0.000 **
UAI	4.020	0.259
MAS	27.653	0.000**
IDV	9.330	0.025*
LTO	1.309	0.727

Note: *p<0.05, **p<0.01

PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index

Figure 6.29 Comparison of employees' values between offices within the manufacturing sector (AAGZ: n=41, AASH: n=20, JJGZ: n=27, JJSH: n=29)

Table 6.17 Comparison of organisational culture between offices within the manufacturing sector

Organisational culture	AAGZ (n=41)	AASH (n=20)	JJGZ (n=27)	JJSH (n=29)	Kruskal-wallis H test	
					Chi-square	Asymp. Sig.
Clan	4.1	3.85	4.00	3.55	6.959	0.073
Adhocracy	3.68	3.1	3.59	3.41	3.147	0.369
Market	3.45	2.90	2.93	3.11	5.066	0.167
Hierarchy	3.95	3.70	3.44	3.17	10.381	0.016*

Note: *p<0.05, **p<0.01

6.7.1.2 Workspace characteristics

The offices of Company AA and Company JJ are similar in the following aspects:

1) A central location in the city is preferred by both organisations, although JJGZ office is located in the suburban area due to historical reasons;

2) Both companies applied standardised design in their office to keep the consistency of organisational image and working environment;

3) All use open-plan layout with directors and senior managers in relatively segregated

area;

4) “L” shape workstations are used by both companies (except the AAGZ office);

5) All have high standard breakout space and catering facilities in offices.

6) Employees in both companies prefer to display photos, trinkets, plants and self-care stuffs most on desk besides work-related accessories. But in general, employees in Shanghai display more personal items on their desks.

However, there are also many differences:

1) JJ Company allocates relatively more space for enclosed rooms (16% -22%, compared to 5%-12% of AA Company) while AA company allocates greater space proportion to open-plan area (48%-63%, compared to 32%-54% of JJ company).

2) While the office design of JJ Company enables direct vision on employees, managers in AA company are visually isolated from their subordinates.

3) Although colour is used as the main tool to brand organisational culture by both companies, the colours used by them are very different according to their organisational cultures.

4) Offices of AA Company have a higher density (5.6 - 7.8 m^2 NIA / person) than offices of JJ Company (6.8 - 10 m^2 NIA / person).

6.7.1.3 Workspace satisfaction

Kruskal-Wallis H test result shows that, in the survey, the workspace satisfactions of employees from the four offices were primarily different in variables related to *Social environment*, *Location and Amenities,* and overall workspace satisfaction. Table 6.18 shows the results. Through comparing the mean scores of satisfaction ratings for each workspace items between the four offices, it was found that:

1) Employees in the AA Company were more satisfied with the *Social environment* of their workspace than employees in the JJ Company.

2) Employees in the JJGZ office had lowest satisfaction in terms of local amenities and transportation due to its suburban location.

3) Employees in the AASH office had highest satisfaction in terms of library

4) Employees in Company AA had significantly higher overall workspace satisfaction than employees in the JJ Company. But in regard to forgiveness, the difference between the four offices was not significant.

Table 6.18 Comparison of workspace satisfaction between offices within the manufacturing sector

(AAGZ n=41, AASH n=20, JJGZ n=27, JJSH n=29)

Workspace variables	Chi-Square	Asymp. Sig.
SO1. Location reflecting organisational power	16.596	0.001**
SO2. Building appearance	13.812	0.003**
SO3. Sense of belonging	8.047	0.045*
SO4. Aesthetics of interior design	9.262	0.026**
SO5. Branding of organisational culture	16.647	0.001**
SO6. Green plant	11.881	0.008**
LO1. Local amenities	18.695	0.000***
LO2. Transportation	36.914	0.000***
FC3. Remote working possibility	8.788	0.032*
AM2. Catering	14.341	0.002**
AM3. Library	20.190	0.000***
Overall workspace satisfaction	9.177	0.027*

Note: *p<0.05, **p<0.01, ***p<0.001, insignificant differences are omitted in the table.

6.7.1.4 Workspace expectations

The comparison of workspace variables that significantly correlated with overall workspace satisfaction between offices shows that the “mental program” of employees in the AAGZ office and the JJSH office were closer to each other than to that of the other two offices. In these two offices, employees’ overall workspace satisfaction was associated with most workspace variables, particularly those in categories of *Social environment, Property management, Functional comfort* and *Workstation quality*. The correlations between workspace variables and overall workspace satisfaction in the JJGZ offices were fewer. The number of correlations in the AASH office was the fewest. Despite the difference, employees’ workspace expectations in the four offices were common in aesthetics of interior design, branding of organisational culture, breakout space and waiting time for lifts.

Table 6.19 Comparison of workspace expectations between offices within the manufacturing sector: based on regression coefficients for overall workspace satisfaction

Workspace variables	Spearman's rho			
	AAGZ (n=41)	AASH (n=20)	JJGZ (n=27)	JJSH (n=29)
SO1.Location reflecting organisational power	.421**			.559**
SO2. Building appearance	.409**	.562**		.495**
SO3. Sense of belonging			.519**	.738**
SO4. Aesthetics of interior design	.579**	.487*	.399*	.500**
SO5. Branding of organisational culture	.531**	.513*	.545**	.429*
SO6. Green plants	.420**		.443*	.657**
SO7. Breakout space	.601**	.544*	.516**	.806**
LO1.Local amenities	.394*			
LO2.Transportation				.413*
PM1. Cleanliness	.436**			.716**
PM2. Waiting time for lifts	.700**	.465*	.423*	.490**
PM3. Toilet	.346*		.495**	.730**
FC1. Ease of communication	.584**			.449*
FC2. Ease of supervision	.332*			.397*
FC3. Remote working possibility	.618**			
AM1. Fitness facilities	.420**			
AM2. Catering			.512**	
AM3. Library				
WS1. IEQ	.435**		.723**	.554**
WS2. Furniture comfort	.435**		.770**	.638**
WS3. Space amount	.467**		.520*	.690**
WS4. View out of windows	.489**		.496*	.451*
WS5. Personalisation possibility	.599**			.635**
WS6. Privacy	.500**		.618**	.523**
WS7. Expression of status	.620**		.570**	.462*

Note: *p<0.05, **p<0.01, ***p<0.001. Insignificant correlations are omitted in the table.

Regarding workspace components contributing to overall workspace satisfaction, AAGZ, JJGZ and JJSH were common in *Workstation quality*. However, in AAGZ office, *Function comfort* showed the strongest effect. The overall workspace satisfaction of AASH office seems affected by more contextual factors, as the regression model created for the office failed to explain the variance of employees' overall workspace satisfaction with significant regression coefficients.

6.7.1.5 Summary of the comparison

Through the comparison, it appears that employees' cultural values varied across offices while the difference in organisational cultures was insignificant.

There are many similarities between the two manufacturing companies in workspace design,

particularly in the selection of site, furniture, layout, provision of amenities and personalisation preferences of employees. But there are also differences in aspects such as interior aesthetics and visual connection between supervisors and subordinates. It seems that organisational practices e.g. the products they produce and the organisation's parent culture, may have significant influence on the workspace design of organisations.

The differences in workspace setting partly account for the differences in employees' workspace satisfaction. In the study, the main differences in employees' workspace perception amongst the four offices were found in variables relating to *Social environment, Location* and *Amenities,* and overall workspace satisfaction. Employees in Company AA in general were more satisfied with the *Social environment* in their workplace and the overall workspace environment. But to what extent the difference in workspace satisfaction was affected by cultural differences remains to be examined.

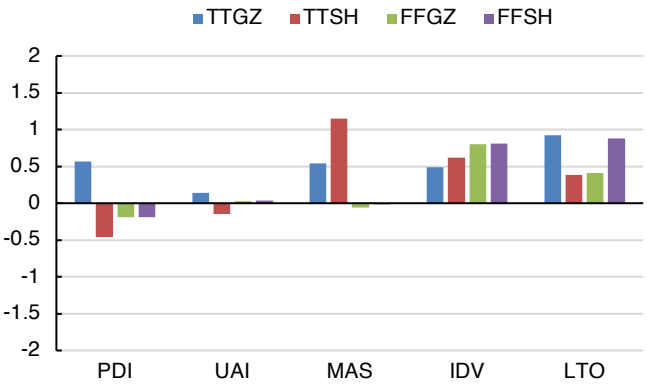
Regarding workspace preference, in general, workspace variables correlated with employees' overall workspace satisfaction in AAGZ office, JJGZ office, and JJSH office were closer compared to those of AASH office. But the strong emphasis on function comfort of AAGZ employees highlighted the uniqueness of this case study.

6.7.2 Within industry similarities and differences: Graphic design

6.7.2.1 Employees' values and perceived organisational culture

Kruskal-wallis H test shows that the cultural values of employees in the four offices were significantly different in *Power Distance* and *Masculinity*. Employees in the TTGZ office had the strongest *Power Distance* amongst the four offices while their counterpart in the TTSH office showed the weakest *Power Distance*. However, employees in TTSH office showed the strongest masculine tendency, followed by the TTGZ office. The results show that the values of employees in the industry were not homogeneous. Typically, they were different in terms of *Power Distance* and *Masculinity.*

Kruskal-wallis H comparison (Table 6.20) shows that the perceived organisational cultures were not homogenous too. The four offices differed in the dimension of *Clan.* The TTSH office showed the strongest *Clan* characteristic among the four offices while the TTGZ office was marked as the weakest in this characteristic. The culture of TTGZ office appeared to be dominant by *Hierarchy*, different from the cultures of the other three offices which were dominant by *Clan*.



	Kruskal-wallis Test	
	Chi-square	Asymp.Sig.
PDI	14.151	0.003 **
UAI	0.497	0.920
MAS	23.976	0.000**
IDV	1.571	0.666
LTO	7.759	0.051

Note: *p<0.05, **p<0.01

PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index

Figure 6.30 Comparison of employees' values between offices within the graphic design industry

(TTGZ: n=37, TTSH: n=13, FFGZ: n=70, FFSH: n=48)

Table 6.20 Comparison of organisational culture between offices in the graphic design industry

(TTGZ n=37, TTSH n=13, FFGZ n=70, FFSH n=48)

Organisational culture	TTGZ	TTSH	FFGZ	FFSH	Kruskal-wallis H test	
					Chi-square	Asymp. Sig.
Clan	3.49	4.38	4.06	3.88	10.959	0.012*
Adhocracy	3.30	4.08	3.4	3.27	6.462	0.091
Market	3.41	3.31	3.31	3.19	0.999	0.802
Hierarchy	3.78	3.92	3.66	3.25	6.536	0.088

Note: *p<0.05, **p<0.01

6.7.2.2 Workspace characteristics

The similarities of the four offices can be seen in following aspects:

1) Both companies consider proximity to clients as the main criterion in choosing the location;

2) Meeting spaces are small;

3) The rooms of directors are all in separated place although in the TTGZ office they are located close to the entrance while in the other three offices they are distant from the entrance.

4) All use rectangular desks with low or without partitions;

5) Their space densities are high (6.8 m^2 NIA / person in maximum);

6) They all use open-plan design

7) Employees do not prefer to personalise workstation with personal photos or artworks. In contrast, green plants, gadgets and self-care items are displayed more frequently.

The differences are:

1) The layouts of the four offices are different. Offices of TT Company allocate more space to open-plan area and have simpler space structures. Only directors have enclosed rooms in the offices of TT Company. In the offices of FF Company, there are more status symbols and more private rooms for managers.

2) The aesthetics of interior designs are different. FF Company applied standard workspace design to create a consistent organisational culture and image while the design of TT offices varies from site to site, relaying much on the personal preferences of top managers.

3) Offices of FF Company have more and higher quality amenities than offices of TT Company have.

6.7.2.3 Workspace satisfaction

Kruskal-Wallis H test (Table 6.21) shows that employees' workspace satisfaction was significantly different in variables relating to *Social environment, Location, Amenities* and *Workspace quality.* The difference in overall workspace satisfaction was also significant. The comparison of the mean scores of workspace satisfaction between offices shows that:

1) TTSH employees were more satisfied with sense of belonging than employees in other three offices. This may be because it is a small office and has better team atmosphere.

2) Employees in TT Company were more satisfied with the location of their office buildings in regard to transportation and local amenities

3) In general, employees in Guangzhou were more satisfied with on-site amenities than employees in Shanghai.

Table 6.21 Comparison of workspace satisfaction between offices in the graphic design industry

(TTGZ n=37, TTSH n=13, FFGZ n=70, FFSH n=48)

Workspace variables	Chi-Square	Asymp. Sig.
SO2. Building appearance	11.539	0.009**
SO3. Sense of belonging	24.2	0.000***
SO5. Branding of organisational culture	8.012	0.046*
LO2. Transportation	19.057	0.000***
PM2. Waiting time for lifts	8.161	0.043*
PM3. Toilet	10.554	0.014*
FC3. Remote working possibility	9.957	0.019*
AM1. Fitness facilities	9.243	0.026*
AM3. Library	22.190	0.000***
WS1. IEQ	18.279	0.000***
WS2. Furniture comfort	10.385	0.016*
WS3. Space amount	13.839	0.003**
WS4. View out of windows	9.478	0.024**
WS6. Privacy	9.716	0.021*
WS7. Expression of status	10.97	0.012*
Overall workspace satisfaction	9.801	0.020*

Note: *p<0.05, **p<0.01, ***p<0.001, insignificant differences are omitted in the table.

6.7.2.4 Workspace expectations

In case studies, workspace variables having significant correlation with overall workspace satisfaction varied from office to office. In the FFGZ office and the TTGZ office, overall workspace satisfaction had stronger correlations with workspace variables of *Workstation quality* than with other workspace variables. But in the FFSH office overall workspace satisfaction seems to have stronger correlations with variables in the category of *Social environment*, and in the TTSH office, significant correlations were found with green plants and IEQ only.

A more striking finding is that the variance of overall workspace satisfaction in the FFGZ office and the TTSH office could not be explained by the satisfaction with the six workspace components. This suggests the important influence of other contextual factors on overall

workspace satisfaction.

Table 6.22 Comparison of workspace expectations between offices in the graphic design industry: based on regression coefficients with overall workspace satisfaction

Workspace variables	Spearman's rho			
	TTGZ (n=37)	TTSH (n=13)	FFGZ (n=70)	FFSH (n=48)
SO1.Location reflecting organisational power				.437**
SO2. Building appearance	.382*		.261*	.439**
SO3. Sense of belonging			.302*	
SO4. Aesthetics of interior design	.334*		.350**	.438**
SO5. Branding of organisational culture				.485**
SO6. Green plants	.500**	.689**		
SO7. Breakout space	.427**			.430**
LO1.Local amenities	.379*		.349**	
LO2.Transportation			.261*	
PM1. Cleanliness			.303*	.350*
PM2. Waiting time for lifts	.433**			.352*
PM3. Toilet	.567**		.351**	
FC1. Ease of communication				
FC2. Ease of supervision	.356*			
FC3. Remote working possibility				
AM1. Fitness	.616**			
AM2. Catering	.341*			
AM3. Library				
WS1. IEQ		.554*	.293*	.581**
WS2. Furniture comfort	.454**		.480**	.346*
WS3. Space amount	.380*		.380**	
WS4. View out of windows	.339*			.319*
WS5. Personalisation possibility	.521**			
WS6. Privacy	.492**		.302*	
WS7. Expression of status	.569**		.480**	

Note: *p<0.05, **p<0.01, ***p<0.001. Non-significant correlation coefficients are omitted.

6.7.2.5 Summary of the comparison

TT Company and FF Company appeared to have similar consideration for the location of their office, choosing of furniture, arrangement of meeting space and employees'

personalisation preferences. But there are also many differences. While FF Company tries to bind employees with an attractive workplace, the design of TTGZ office focuses on impressing clients with a “cool” feeling so as to show their creativeness and professionality. But the TTSH office adopts a quite different design from the company’s head office in Guangzhou by following the personal taste of its general manager. These different considerations have resulted in very different workspace outcomes between them, particularly in terms of the provision of amenities and cellular rooms of middle managers, and the aesthetics of office design.

But an interesting phenomenon discovered in these two case studies is that, while the TTGZ office and the FFSH office in general have a “better” environment, for example, more attractive interior design, lower density and larger floor-based supporting area, their employees however, did not feel happier than their counterparts in the other two offices. Organisational contexts might have moderated the influence of physical space on individuals’ spatial satisfaction. The insignificant regression effect of workspace components on employees’ overall workspace satisfaction in these two offices may also suggest the influence of contextual factors. For example, it is possible that the stronger *Adhocracy* culture of TTSH office might be connected to the fewer desires for workspace.

The perceived dominant cultural characteristics of the four offices were divergent. This is different from the manufacturing sector in which the culture of the four offices all showed a dominant characteristic of Clan. Regarding employees’ values, although employees in the four offices all had an *individualistic* tendency, significant differences were found in *Power Distance* and *Masculinity.*

Based on these discoveries, it appears that there is no such thing as one single “graphic design culture” or one type of “graphic designer office”.

6.7.3 Comparison between industries

Mann-Whitney U tests were conducted to compare employees’ cultural values and perceived organisational culture between the two industries. The result shows that the between-industrial difference was not significant (Table 6.23). It appeared that organisations in the manufacturing sector were generally employee-focused and their cultures dominantly showed a *Clan* feature. But the perceived dominant features of organisational cultures of the four offices in the graphic design industry were inconsistent. While the TTGZ office mainly reflected a *Hierarchy* culture, the other offices were dominated by the *Clan* feature.

Table 6.23 Comparison of employees' values and perceived organisational culture between industries

	Employees' work-related values					Organisational culture			
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
Manufacturing mean	0.16	-0.14	0.19	0.82	0.72	3.9	3.49	3.15	3.60
Graphic design mean	-0.04	0.04	0.18	0.72	0.65	3.9	3.39	3.3	3.59
Mann-Whitney U	8860.5	8482.5	9647	9036	9489.5	9411	8847.5	8634.5	9513
Wilcoxon W	22888.5	15268.5	236750	23064	23517.5	15966	22708.5	15075.5	23374
Z	-1.256	-1.855	-.060	-1.014	-.304	-.082	-.965	-1.169	-.050
Sig. (2-tailed)	.209	.064	.952	.311	.761	.935	.335	.243	.960

Note: *p<0.05, **p<0.01, ***p<0.001.
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index
Manufacture n=116; Graphic design n=168

Regarding workspace satisfaction, in 20 out of the 25 workspace variables (except sense of belonging, local amenities, library, furniture comfort and view out of windows), and overall workspace satisfaction, the between-industrial difference was significant (Table 6.24). Employees in the manufacturing sector had higher workspace satisfaction in general. But in regard to forgiveness, the difference between industries was insignificant.

Some of the differences may be due to the different physical workspace design, for instance:

1) As global companies, AA Company and JJ Company locate their offices in high-end properties in city centres (except the JJGZ office). This may account for the higher satisfaction with organisational image, building appearance, transportation, property management and IEQ in the industry.

2) Averagely, the density of offices in the graphic design industry is higher than that of manufacturing offices (See Table 6.25). This might account for the higher satisfaction with space amount for employees in manufacturing sector.

3) Organisations in the manufacturing sector prefer "L" shape desks with partitions in at least two directions. This enables employees to have larger work surface and better privacy.

4) Amenities and breakout space in the offices of manufacturing company are designed with much higher standard than in the offices of graphic design companies. Three manufacturing offices have a canteen while none of the graphic design companies has it.

Table 6.24 Comparison of workspace satisfaction between industries: Mann-Whitney U test

Workspace variables	Workspace satisfaction		Z	Asymp. Sig.
	Graphic design (N=168)	Manufacturing (N=116)		
SO1.Location reflecting organisational power	3.46	3.74	-2.171	0.03*
SO2. Building appearance	3.31	3.59	-2.623	0.009**
SO3. Sense of belonging	3.17	3.32	-0.913	0.361
SO4. Aesthetics of interior design	3.41	3.87	-4.28	0.000***
SO5. Branding of organisational culture	3.68	4.22	-4.399	0.000***
SO6. Green plants	3.49	3.86	-3.825	0.000***
SO7. Breakout space	3.35	3.95	-5.605	0.000***
LO1.Local amenities	3.47	3.25	-1.961	0.05
LO2.Transportation	3.7	3.36	-3.08	0.002**
PM1. Cleanliness	3.34	3.84	-4.811	0.000***
PM2. Waiting time for lifts	3.41	3.88	-4.493	0.000***
PM3. Toilet	3.36	3.85	-4.775	0.000***
FC1. Ease of communication	3.62	3.91	-2.904	0.004**
FC2. Ease of supervision	3.75	3.93	-2.474	0.013*
FC3. Remote working possibility	2.64	3.46	-5.136	0.000***
AM1. Fitness facilities	2.00	2.46	-2.121	0.034*
AM2. Catering	2.32	3.04	-3.843	0.000***
AM3. Library	2.53	2.85	-0.503	0.615
WS1. IEQ	3.34	3.73	-3.606	0.000***
WS2. Furniture comfort	3.53	3.71	-1.851	0.064
WS3. Space amount	3.35	3.71	-3.397	0.001**
WS4. View out of windows	2.92	3.08	-0.89	0.373
WS5. Personalisation possibility	3.17	3.6	-3.55	0.000***
WS6. Privacy	2.66	2.98	-2.805	0.005**
WS7. Expression of status	3.34	3.52	-2.26	0.024*
Overall workspace satisfaction	3.33	3.68	-5.023	0.000***
Forgiveness	1.04	1.04	-0.018	0.986

Note: *p<0.05, **p<0.01, ***p<0.001.

5) Employees in the manufacturing sector appear to personalise their workstation to a larger extent than those in graphic design. More photos of family or friends were displayed on the workstations in the manufacturing sector.

6) There is relatively more meeting space in the offices of manufacturing companies.

This might account for the higher satisfaction with communication.

7) Manufacturing companies seem to have a stronger tendency to use their workspace for branding than graphic design companies. For example, both AA and JJ use colours to brand their organisational values and products. This might have led to the higher satisfaction with branding of organisational culture in manufacturing.

8) Offices in the manufacturing sector are more complicated in space structure, with more enclosed rooms of different sizes to differentiate the status of employees than offices in the graphic design industry.

Table 6.25 Comparison of workspace density between industries

	Manufacturing					Graphic design				
	AAGZ	AASH	JJGZ	JJSH	Avg.	TTGZ	TTSH	FFGZ	FFSH	Avg.
NIA/p (m^2)	5.6	7.8	10	6.8	7.6	6.8	3.6	4.6	6.8	5.5
Workstation area/p (m^2)	3.4	5.3	4.8	3.9	4.4	3.9	2.7	3.0	3.4	3.3

In the study, the correlations between workspace variables and overall workspace satisfaction were tested for each office to identify employee's workspace expectation. The results showed that for employees in manufacturing companies, workspace variables having significant correlations with overall workspace satisfactions were common in terms of aesthetics of interior design, branding of organisational culture, breakout space and waiting time for lifts. However, employees in different offices in the graphic design sector did not have common expectations. Mann-Whitney U test (n=8) between industries showed that in terms of aesthetics of interior design ($z=-2.021$, $p<0.05$), breakout space ($z=-2.309$, $p<0.05$), waiting time for lifts ($z=02.201$, $p<0.05$) and privacy ($z=-2.309$, $p<0.05$), significantly higher correlation coefficients were found in the manufacturing sector. This suggests that employees in the manufacturing sector may pay more attention to these four variables. But since the cultural difference between the two industries was insignificant, hardly can we attribute the difference in workspace preferences to cultural difference.

Table 6.26 Comparison of workspace expectation between industries: based on correlation coefficients with overall workspace satisfaction

Workspace variables	Manufacturing				Graphic			
	AASH	AAGZ	JJSH	JJGZ	FFSH	FFGZ	TTSH	TTGZ
SO1.Location reflecting organisational power		.421**	.559**		.437**			
SO2. Building appearance	.562**	.409**	.495**		.439**	.261*		.382*
SO3. Sense of belonging			.738**	.519**		.302*		
SO4. Aesthetics of interior design	.487*	.579**	.500**	.399*	.438**	.350**		.334*
SO5. Branding of organisational culture	.513*	.531**	.429*	.545**	.485**			
SO6. Green plants		.420**	.657**	.443*			.689**	.500**
SO7. Breakout space	.544*	.601**	.806**	.516**	.430**			.427**
LO1.Local amenities		.394*				.349**		.379*
LO2.Transportation			.413*			.261*		
PM1. Cleanliness		.436**	.716**		.350*	.303*		
PM2. Waiting time for lifts	.465*	.700**	.490**	.423*	.352*			.433**
PM3. Toilet		.346*	.730**	.495**		.351**		.567**
FC1. Ease of communication		.584**	.449*					
FC2. Ease of supervision		.332*	.397*					.356*
FC3. Remote working possibility		.618**						
AM1. Fitness facilities		.420**						.616**
AM2. Catering				.512**				.341*
AM3. Library								
WS1. IEQ		.435**	.554**	.723**	.581**	.293*	.554*	
WS2. Furniture comfort		.435**	.638**	.770**	.346*	.480**		.454**
WS3. Space amount		.467**	.690**	.520*		.380**		.380*
WS4. View out of windows		.489**	.451*	.496*	.319*			.339*
WS5. Personalisation possibility		.599**	.635**					.521**
WS6. Privacy		.500**	.523**	.618**		.302*		.492**
WS7. Expression of status		.620**	.462*	.570**		.480**		.569**

Note: *p<0.05, **p<0.01, ***p<0.001; insignificant correlations are omitted.

Despite the common expectations, the importance of different workspace elements seemed different across offices. According to the results of regression analysis, in the JJGZ office, the JJSH office, and the TTGZ office, variance in employees' overall workspace satisfaction could be explained primarily by the satisfaction with *Workstation quality*. But it was mainly explained by the satisfaction with *Functional comfort* in the AAGZ office, and by the satisfaction with *Social environment* in the FFSH office. However, in the TTSH office, the

AASH office and the FFGZ office, the correlation between all workspace components and overall workspace satisfaction was insignificant. It appears that while there may be an industrial preference for workspace, but the effect on employees' overall workspace satisfaction might be moderated by organisational context in reality and as a result, employees' overall workspace satisfaction appears to be affected mainly by different workspace elements.

6.8 Cross-region comparison

Mann-Whitney U tests were conducted to compare employees' cultural values and perceived organisational culture between the two regions too. The results showed a significant between-regional difference in terms of *Power Distance, Masculinity* and *Hierarchy* (Table 6.27). Employees in Guangzhou had a more masculine culture with stronger *Power Distance*. In regard to organisational culture, stronger *Hierarchy* was found in Guangzhou offices.

Table 6.27 Comparison of employees' values and perceived organisational culture between regions

	Employees' work-related values					Organisational culture			
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
Guangzhou mean	0.27	0.05	0.30	0.80	0.65	3.94	3.47	3.30	3.72
Shanghai mean	-0.32	-0.17	0.00	0.70	0.74	3.85	3.37	3.13	3.39
Mann-Whitney U	7007	8604	8075.5	9207.5	9062.5	8873.5	9232	8541	7917
Wilcoxon W	13112	14709	14180.5	15312.5	24462.5	14978.5	15337	14536	14022
Z	-3.982	-1.572	-2.373	-0.65	-0.87	-0.938	-0.357	-1.303	-2.488
Sig. (2-tailed)	0.000***	0.116	0.018*	0.515	0.384	0.348	0.721	0.193	0.013*

Note: *p<0.05, **p<0.01, ***p<0.001. Guangzhou n=176, Shanghai n=110
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index
IDV = Individualism Index, LTO = Long-term Orientation Index

However, significant differences in employees' workspace satisfaction were only found in four workspace variables: transportation, fitness facilities, library and space amount (Table 6.28). But the differences were difficult to be explained through variance in physical workspace. A Mann-Whitney U test (n=8) was conducted to compare the objective workspace parameters between cities, however, no significant difference between regions was found.

Table 6.28 Comparison of workspace satisfaction between regions: Mann-Whitney U test

Workspace variables	Workspace satisfaction		Z	Sig. (2-tailed)
	Guangzhou (N=176)	Shanghai (N=110)		
SO1.Location reflecting organisational power	3.56	3.6	-0.347	0.729
SO2. Building appearance	3.38	3.51	-1.461	0.144
SO3. Sense of belonging	3.24	3.22	-0.068	0.946
SO4. Aesthetics of interior design	3.67	3.5	-1.793	0.073
SO5. Branding of organisational culture	3.93	3.87	-0.737	0.461
SO6. Green plants	3.57	3.75	-1.642	0.101
SO7. Breakout space	3.65	3.52	-0.648	0.517
LO1.Local amenities	3.31	3.48	-1.257	0.209
LO2.Transportation	3.43	3.78	-2.942	0.003**
PM1. Cleanliness	3.52	3.58	-0.687	0.492
PM2. Waiting time for lifts	3.62	3.59	-0.455	0.649
PM3. Toilet	3.56	3.57	-0.08	0.936
FC1. Ease of communication	3.76	3.69	-1.417	0.157
FC2. Ease of supervision	3.83	3.81	-0.578	0.563
FC3. Remote working possibility	3.04	2.86	-1.168	0.243
AM1. Fitness facilities	2.32	1.98	-2.038	0.042*
AM2. Catering	2.58	2.58	-0.55	0.582
AM3. Library	3.06	2.00	-4.183	0.000***
WS1. IEQ	3.47	3.55	-0.538	0.590
WS2. Furniture comfort	3.61	3.59	-0.036	0.971
WS3. Space amount	3.59	3.33	-2.121	0.034*
WS4. View out of windows	3.04	2.9	-1.145	0.252
WS5. Personalisation possibility	3.39	3.27	-0.722	0.471
WS6. Privacy	2.88	2.66	-1.66	0.097
WS7. Expression of status	3.46	3.33	-1.7	0.089
Overall workspace satisfaction	3.54	3.37	-1.578	0.115
Forgiveness	1.0604	1.0133	-1.216	0.224

Note: *p<0.05, **p<0.01, ***p<0.001.

Table 6.29 Comparison of workspace expectations between regions: based on correlation coefficients with overall workspace satisfaction

Workspace variables	Guangzhou				Shanghai			
	TTGZ	AAGZ	FFGZ	JJGZ	AASH	JJSH	TTSH	FFSH
SO1.Location reflecting organisational power		.421**				.559**		.437**
SO2. Building appearance	.382*	.409**	.261*		.562**	.495**		.439**
SO3. Sense of belonging			.302*	.519**		.738**		
SO4. Aesthetics of interior design	.334*	.579**	.350**	.399*	.487*	.500**		.438**
SO5. Branding of organisational culture		.531**		.545**	.513*	.429*		.485**
SO6. Green plants	.500**	.420**		.443*		.657**	.689**	
SO7. Breakout space	.427**	.601**		.516**	.544*	.806**		.430**
LO1.Local amenities	.379*	.394*	.349**					
LO2.Transportation			.261*			.413*		
PM1. Cleanliness		.436**	.303*			.716**		.350*
PM2. Waiting time for lifts	.433**	.700**		.423*	.465*	.490**		.352*
PM3. Toilet	.567**	.346*	.351**	.495**		.730**		
FC1. Ease of communication		.584**				.449*		
FC2. Ease of supervision	.356*	.332*				.397*		
FC3. Remote working possibility		.618**						
AM1. Fitness facilities	.616**	.420**						
AM2. Catering	.341*			.512**				
AM3. Library								
WS1. IEQ		.435**	.293*	.723**		.554**	.554*	.581**
WS2. Furniture comfort	.454**	.435**	.480**	.770**		.638**		.346*
WS3. Space amount	.380*	.467**	.380**	.520*		.690**		
WS4. View out of windows	.339*	.489**		.496*		.451*		.319*
WS5. Personalisation possibility	.521**	.599**				.635**		
WS6. Privacy	.492**	.500**	.302*	.618**		.523**		
WS7. Expression of status	.569**	.620**	.480**	.570**		.462*		

Note: *p<0.05, **p<0.01, ***p<0.001; insignificant correlations are omitted.

In regard to workplace expectations, the findings of regression analysis showed that in three offices in Guangzhou (AAGZ, JJGA and TTGZ), *Workstation quality* appeared to have the strongest regression coefficient for employees' overall workspace satisfaction. But workspace components affecting Shanghai employees' overall workspace satisfaction were divergent across offices.

A closer look at workspace variables having significant correlations with overall workspace satisfactions showed that aesthetics of interior design, toilet, furniture comfort, space

amount, privacy and expression of status were common for the four offices in Guangzhou. But in Shanghai, none expectation was common for the four offices (Table 6.29).

The correlation coefficients between each workspace variables and overall workspace satisfaction were compared between the two regions with Mann-Whitney U test (n=8). It was found that in terms of local amenities ($z=-1.9841$, $p<0.05$) and expression of status ($z=-2.366$, $p<0.05$), significantly higher correlation coefficients were found in Guangzhou. It seems that respondents in Guangzhou paid more attention to them. The preference for expression of status might be because of the stronger *Masculinity* and *Power Distance* in Guangzhou. But the preferences for local amenities is suspicious.

6.9 The interplay of organisational culture, workspace and employees

The above case studies showed the similarities and differences in employees' values, workspace satisfaction, expectation and personalisation, as well as those in physical workspace and perceived organisational culture between offices. A remaining question is: how do these differences interrelate with each other?

According to the literature, workspace is the place where employees are encultured and the intra-organisational contexts (including both cultural and spatial factors) will draw on certain influence on employees' workspace behaviours and their person-environment fit. Because of these, the section at first statistically examines the relationship between employees' values, workspace characteristics, and perceived organisational culture with a hope to understand how the understanding of the cultural context of an organisation is affected by workspace and employees' values. This is followed by a discussion about the effect of organisational cultural and workspace on employees' values in regard to person-environment fit. The findings reveal how workspace is interpreted by employees with certain values to make sense of organisational culture. After that, the effect of employees' values and perceived organisational culture on workspace evaluation and accommodative behaviours are further examined.

6.9.1 Culture, workspace and the interpretation of spatial meanings

Different societies may have different cognition patterns to encode and decode spatial meanings (Rapoport, 2000). Based on the interpretation of spatial cues, employees are able to know the norms and values of the organisations. As such, social-culture may affect how workspace information is interpreted to form the understanding of organisational culture. Therefore, the correlations between physical space characteristics and perceived

organisational cultures, and the correlation between employees' values and the perceived organisational culture were tested across eight case studies in this section. The results are expected to reveal the potential influence of workspace characteristics and office workers' cultural values cultivated by their national, regional and industrial cultures on the perception of organisational culture.

Table 6.30 illustrates the correlations between workspace parameters and employees' perceived organisational culture. The results show that:

1) In offices where the organisational culture was perceived as having stronger *Clan* and *Adhocracy* features, top managers were more visually accessible to ordinary employees. This finding seems in contrast to the theoretical proposition of Cameron and Quinn (2006) that in *Adhocracy* cultures visual control is disdained. However, it is possible that in office with a stronger *Adhocracy* culture, the organisation atmosphere is less formal and team leaders may sit closer to organisational employees, like in the TTSH office.

2) In offices where the organisational culture was perceived as having stronger *Market* features, the space density tended to be higher and employees tended to have less privacy and amenities like canteen at the workplace. This finding is consistent with theoretical interpretation of Cameron and Quinn's (2006) that *Market* culture are external focused and the empirical finding of Van der Voordt et al.(2003). Moreover, it is also found that in a *Market* culture, the allocation of window views is more equal among managers and employees.

3) In offices where the organisational culture was perceived as having stronger *Hierarchy* features, there were more enclose rooms as status symbols and top managers are more available visually while the allocation of window views is more equal among managers and employees. This may be because that organisational with stronger *Hierarchy* have greater emphasis on internal stability and therefore while differentiating space standards to reinforce organisational hierarchy, also try to make the majority of employees feel comfort.

The correlations can be projected on Cameron and Quinn's four quadrants of organisational culture (Figure 6.31). It appears that organisational cultures that were perceived as stressing stability tend to have more correlations with workspace factors. In other words, employees in organisations that stress stability may pay more attention to physical working environment. Among organisations stressing stability, those having fewer on-site amenities and small and equipped with simpler furniture such as rectangular desk with poor privacy,

tend to be perceived as having an external-focused culture (*Market*) while those having more fixed cellular rooms in open-plan office tend to be perceived as having an internal-focused culture (*Hierarchy*).

Table 6.30 Correlations between organisational culture and workspace characteristics

Workspace characteristics	Spearman's rho (n=8)			
	Clan	Adhocracy	Market	Hierarchy
Location of the office	0.143	-0.039	0.341	0.039
Accessibility of the office	-0.218	-0.546	-0.11	0.218
Building type	0.225	0.125	-0.025	-0.175
NIA per person	-0.551	-0.467	-0.771*	-0.563
Layout types	0.282	0.056	0.51	0.845**
Place of top managers	-0.109	-0.109	0.274	0.109
Place of middle managers	-	-	-	-
Visual accessibility of top managers	0.733*	0.733*	0.604	0.764*
Visual accessibility of middle managers	-0.126	0.126	0.000	-0.504
Access to windows	0.339	0.287	0.866**	0.717*
Work area of top managers per person	-0.31	-0.262	0.311	-0.071
Work area of middle managers per person	-0.086	0.143	0.029	0.429
Work area of ordinary employees per person	-0.675	-0.494	-0.642	-0.301
Number of meeting rooms on the floor	-0.132	0.108	-0.187	-0.467
Proximity to meeting space	0.37	-0.064	0.173	0.639
Expression of organisational identity	-0.218	-0.327	-0.22	-0.218
Colour	0.082	0.041	-0.124	-0.289
Percentage of enclosed office	0.119	0.214	-0.503	-0.333
Percentage of open-plan space	0.143	-0.024	0.072	0.429
Percentage of floor-based support area	-0.095	-0.048	0.108	0.071
Percentage of primary circulation	-0.09	-0.342	-0.414	-0.667
Breakout space	-0.109	-0.327	-0.416	-0.514
Catering	-0.289	-0.289	-0.477	-0.44
Canteen	-0.399	-0.289	-0.871**	-0.412
Fitness facilities	-0.504	-0.378	-0.634	-0.378
Library and training space	-0.327	-0.655	-0.494	-0.655
Shower room	-0.504	-0.378	-0.634	-0.378
Nursing room	-0.504	-0.378	-0.634	-0.378
Shape of workstations	0.394	0.169	0.850**	0.507
Partitions height of workstations	-0.206	-0.151	-0.463	-0.674
Partitions direction of workstations	-0.309	-0.198	-0.739*	-0.655

Note: *p<0.05, **p<0.01;
"-" correlation analysis could not be performed due to data convergence.

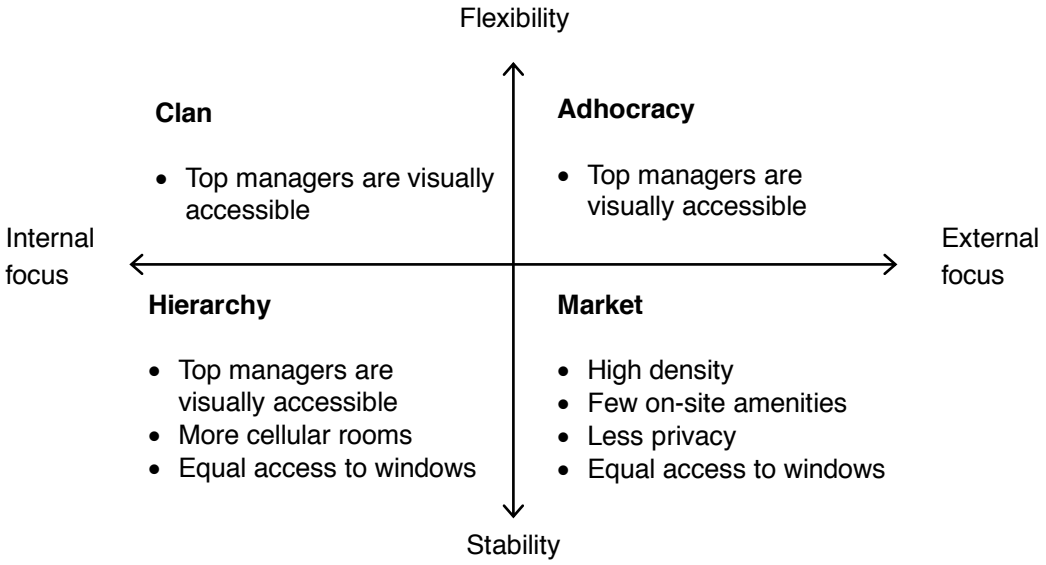
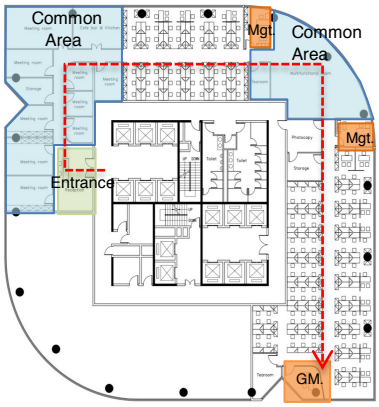


Figure 6.31 Workspace characteristics associated with the perception of organisational culture projected on Cameron and Quinn's model

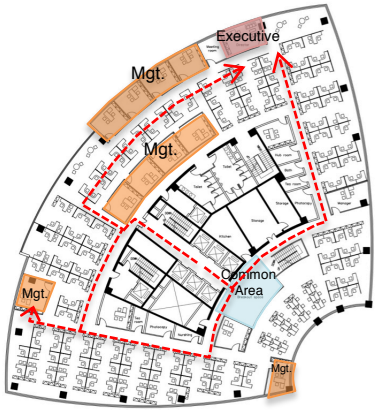
The model reveals a number of distinctive patterns that Chinese employees use to decipher spatial meanings. Some findings are contradictory to the literature. For example, some status symbols described in the literature seemed inactive in the research. It is noted that priority of accessing to windows did not denote status in the case studies. Further, the correlation between *Hierarchy* and the size of workspace was insignificant too. Table 6.31 compared the unequal levels of workstation size across employees in different levels of organisational hierarchy between manufacturing and graphic design industry. Graphic design appeared to have greater spatial differentiation in offices than manufacturing. However, their cultural difference in *Hierarchy* was insignificant. It seems that, this spatial cue was not noticed. Chinese employees tend to evaluate the Hierarchy level of their organisational culture simply based on the number of cellular rooms.

Table 6.31 Comparison of inequality of workspace allocation between industries

Workspace area / desk (m^2)	Manufacturing					Graphic design					National avg.
	AAGZ	AASH	JJGZ	JJSH	Avg.	TTGZ	TTSH	FFGZ	FFSH	Avg.	
Top	20.0	22.0	17.6	24.4	21.0	24.0	9.0	20.0	30.0	20.8	20.9
Middle		16.0	10.2	11.7	12.6			9.7	11.6	10.7	8.5
Ordinary	3.4	5.3	4.8	3.9	4.4	3.9	2.7	3.0	3.4	3.3	3.8
Top-Ord ratio	5.9	4.2	3.7	6.3	4.8	6.2	3.3	6.7	8.9	6.4	5.5
Mid-Ord ratio		3.0	2.1	3.0	2.9			3.3	3.5	3.3	2.2
Top-Mid ratio		1.4	1.7	2.1	1.7			2.2	2.7	1.9	2.5



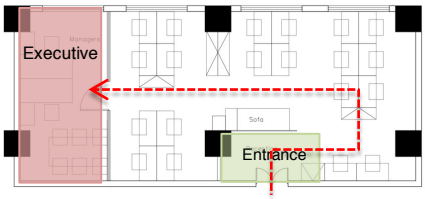
AAGZ office



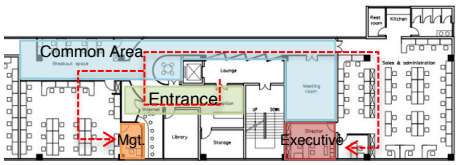
AASH office

JJGZ office

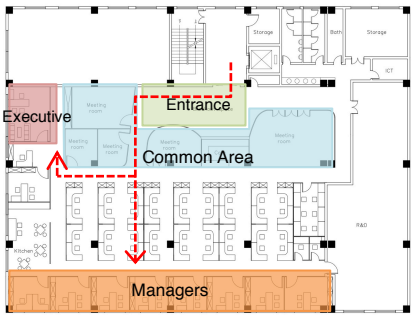
FFSH office



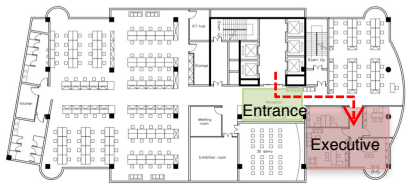
TTSH office



FFGZ office



JJGZ office **



TTGZ office **

Note: ** do not follow the historical patter showed in Figure 3.8

Figure 6.32 Space patterns of eight case studies

However, this model might be too simple to reveal full set of spatial languages that Chinese employees use to deliver spatial meanings. For example, when looking at the floor layouts of eight studies office, it could be found that “space depth”, an important spatial cue use in ancient Chinese administrative buildings (see Chapter 3), was still seen in six offices (AAGZ, AASH, JJGZ, FFSH, FFGZ, TTSH) but miss out in the statistical analysis.

In above six offices, rooms of directors or top managers were arranged distant from the entrance. Visitors need to go through the public area and open-plan working area to reach top managers (Figure 6.32). This is quite different from the typology presented by Steelcase (2012) in Chapter 2 (Table 2.12).

The understanding of organisational culture is not simply affected by the perception of space, but also by cultural values. This is confirmed by the results of correlation test between individuals’ values and the perception of organisational culture at the individual level (Table 6.32). It appears that:

1) Employees that have stronger *Power Distance* values rated organisational culture as stronger in *Adhocracy, Market* and *Hierarchy;*

2) Employees that have stronger *Uncertainty Avoidance* values rated organisational culture as stronger in *Market*;

3) Employees that have stronger masculine values rated organisational culture as stronger in all characteristics;

4) Employees that have stronger individualistic values rated organisational culture as stronger in *Clan, Adhocracy* and *Hierarchy*;

5) Employees that have stronger *Long-term Orientation* values rated organisational culture as stronger in *Adhocracy* and *Market*.

At the between-office level, the correlations between employees’ values and perceived organisational culture characteristics are illustrated in Table 6.33. The result shows that:

1) *Clan* is negatively correlated with *Long-term Orientation.* In offices that were perceived as having stronger *Clan* culture, employees were weaker in *Long-term Orientation*.

Table 6.32 Correlation between employees' values and perceived organisational culture at the individual level

	Spearman's rho (n=286)								
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
PDI	1.000	.173**	.426**	.195**	.261**	0.066	.120*	.209**	.209**
UAI		1.000	.159**	.171**	.231**	0.035	0.044	.155**	.007
MAS			1.000	.243**	.191**	.156**	.222**	.157**	.155**
IDV				1.000	.211**	.380**	.217**	0.041	.123*
LTO					1.000	0.015	.131*	.189**	.037
Clan						1.000	.509**	.122*	.206**
Adhocracy							1.000	.199**	.329**
Market								1.000	.179**
Hierarchy									1.000

Note: *p<0.05, **p<0.01.

PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index

2) *Market* is positively correlated with *Uncertainty Avoidance.* In offices that were perceived as having stronger *Market* culture, employees held stronger *Uncertainty Avoidance*.

3) *Hierarchy* is positively correlated with *Masculinity.* In offices that were perceived as having stronger *Hierarchy* culture, employees held a more masculine orientation

Compared to the correlations at the individual level, the numbers of correlations at the between-office level were fewer, but the strength of correlations was much stronger. It appeals that personal values do affect the perception of organisational culture, but the effect is limited. In turn, organisational culture may have a strong effect on attracting employees with particular values. *Market* culture that emphasises stability tends to attract employees that have stronger *Uncertainty Avoidance* values. *Clan* culture that emphasises flexibility and internal integration tends to attract short-tern oriented employees that respect traditions, concern with "face" and value harmony at the workplace (Hofstede, 2018). Hierarchy culture that is internally focused and has highly formalised hierarchical structure, tends to attract masculine employees who are ambitious for career success and material achievement.

Table 6.33 Correlation between employees' values and perceived organisational culture at the between-office level

	Spearman's rho (n=8)								
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
PDI	1.000	0.611	0.467	0.515	0.299	-0.024	-0.048	0.367	0.551
UAI		1.000	0.238	-0.095	0.548	0.000	0.048	0.790*	0.333
MAS			1.000	0.167	-0.214	0.429	0.405	0.455	0.905**
IDV				1.000	-0.262	0.310	-0.095	-0.371	0.119
LTO					1.000	-0.714*	0-.381	0.180	-0.286
Clan						1.000	0.690	0.311	0.476
Adhocracy							1.000	0.407	0.381
Market								1.000	0.635
Hierarchy									1.000

Note: *p<0.05, **p<0.01.
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index

These connections suggest that it is also possible to predict the preferred type of organisational culture based on employees' cultural values, and to predict what kind of values an organisations' employees hold based on its organisational culture. To this end, the types of organisational culture were coded based on dominant organisational culture characteristics so as to allow testing of which cultural dimensions appears to determine organisation culture. Coding was done as follows:

1) Offices whose culture is dominated by *Adhocracy* were coded as 1;

2) Offices whose culture is dominated by close *Clan* and *Adhocracy* characterises were coded as 2. Case studies in this type of culture include TTSH office and JJSH office;

3) Offices in which *Clan* is far stronger than other characterises were coded as 3. Case studies in this type of culture include FFGZ office, FFSH office and JJGZ office;

4) Offices in which *Market* is far stronger than other characterises were coded as 4;

5) Offices in which *Hierarchy* is far stronger than other characterises were coded as 5. TTGZ office falls to this type of culture;

6) Offices whose culture is dominated by close Clan and Hierarchy characterises was coded as 6. Case studies in this type of culture include AAGZ office and AASH office;

Hofstede' five cultural dimensions were put into stepwise regression analysis as

independent variables. The model is shown in Table 6.34. The result shows that, consistent with the argument of Hofstede (2008), *Power Distance* and *Uncertainty Avoidance* appear to affect organisational culture significantly. Based on this finding, it is not difficult to explain why case studies in Guangzhou appeared to have stronger *Hierarchy*.

Table 6.34 Regression analysis: Using Hofstede's cultural dimensions to predict organisational culture (n=8)

Model	Unstandardized Coefficients		Standardized	t	Sig.
	B	Std. Error	β		
(Constant)	3.352	0.221		15.137	
PDI	3.626	0.477	1.121	7.606	0.001*
UAI	-4.473	1.129	-0.584	-3.962	0.011*
Variation explained R^2			0.920		0.002**

Note: *p<0.05, **p<0.01. PDI = Power Distance, UAI = Uncertainty Avoidance.
Insignificant regression coefficients are omitted.

6.9.2 Culture, workspace and evaluation

The comparison of case studies showed the importance influence of physical workspace on employees' workspace satisfaction. However, there remain many ambiguities. For example, although the physical setting of the FFGZ office seemed poorer than that of the FFSH office in many aspects, respondents were more satisfied with the FFGZ office. It appears that the influence of contextual factors may be important.

To test how different levels of culture affect workspace satisfaction, the correlations between workspace satisfaction, employees' values and perceived organisational culture were examined across the eight offices at both individual level and between-office level. The correlations at the individual level are showed in Table 6.35. It appears that:

1) Employees having a stronger *Power Distance* appeared to be more satisfied with building appearance and catering , and had higher overall workspace satisfaction;

2) Employees with stronger *Individualism* values appeared to be more satisfied with building appearance, aesthetics of interior design, sense of belonging, branding of organisational culture, green plants, local amenities, waiting time for lifts, toilet, ease of communication and supervision and *Workstation qualities* in regard to IEQ, space amount and furniture comfort. They also appeared to have higher overall workspace satisfaction.

Table 6.35 Correlations between culture, workspace satisfaction and forgiveness at the individual level

	Spearman's rho (n=286)								
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
SO1.Location reflecting organisational power	0.093	0.034	0.044	0.03	0.118*	0.038	0.156**	0.112	0.168**
SO2. Building appearance	0.140*	-0.003	0.055	0.125*	0.121*	0.109	0.184**	.139*	0.151*
SO3. Sense of belonging	0.061	0.109	0.113	0.249**	0.099	0.343**	0.296**	0.162**	0.095
SO4. Aesthetics of interior design	0.099	-0.05	0.132*	0.181**	0.11	0.133*	0.159**	0.026	0.082
SO5. Branding of organisational culture	0.093	-0.042	0.081	0.144*	0.146*	0.166**	0.185**	-0.025	0.119*
SO6. Green plants	-0.018	-0.067	0.001	0.125*	0.076	0.11	0.097	0.023	0.047
SO7. Breakout space	0.100	-0.023	0.032	0.106	0.062	0.101	0.152*	0.049	0.094
LO1. Local amenities	0.083	0.058	0.039	0.144*	0.083	.159**	0.132*	0.148*	0.186**
LO2.Transportation	0.055	0.015	0.004	0.101	0.116	0.098	0.078	0.102	0.098
PM1. Cleanliness	-0.013	-0.104	0.026	0.104	0.123*	0.145*	0.233**	0.047	0.191**
PM2. Waiting time for lifts	0.096	-0.033	0.108	0.130*	0.126*	0.165**	0.204**	0.07	0.229**
PM3. Toilet	-0.001	0.009	0.04	0.219**	0.105	0.222**	0.165**	0.074	-0.018
FC1. Ease of communication	0.094	-0.004	0.038	0.121*	0.078	0.250**	0.178**	0.088	0.103
FC2. Ease of supervision	0.071	0.034	0.032	0.198**	0.075	0.234**	0.191**	0.065	0.021
FC3. Remote working possibility	0.100	0.006	0.01	0.06	0.09	0.000	0.116	0.037	0.067
AM1. Fitness facilities	0.081	0.068	0.08	0.005	0.077	0.064	0.194**	0.147*	0.037
AM2. Catering	0.139*	-0.038	0.13*	0.074	-0.005	0.07	0.087	0.014	0.11
AM3. Library	-0.033	0.056	0.058	-0.166	-0.035	0.1	0.233**	0.071	0.121
WS1. IEQ	0.045	-0.054	0.131*	0.131*	0.001	0.107	0.225**	-0.001	0.205**
WS1. Furniture comfort	-0.045	-0.033	0.061	0.119*	0.065	0.207**	0.282**	0.134*	0.079
WS3. Space amount	0.027	0.028	0.035	0.119*	0.088	0.159**	0.224**	0.029	0.026
WS4. View out of windows	-0.058	0.092	0.108	0.084	0.054	0.139*	0.221**	0.143*	0.121*
WS5. Personalisation possibility	0.078	0.007	0.055	0.079	0.061	0.123*	0.195**	0.133*	0.076
WS6. Privacy	0.116	0.052	0.103	0.054	-0.041	0.117	0.254**	0.1	0.083
WS7. Expression of status	0.051	0.012	0.083	0.078	0.054	0.122*	0.304**	0.215**	-0.007
Overall workspace satisfaction	0.137*	-0.03	0.153*	0.197**	0.114	0.285**	0.243**	0.154	0.149*
Forgiveness	0.042	-0.055	0.061	0.075	0.016	0.147*	0.03	0.012	0.024

Note: *p<0.05, **p<0.01

3) Employees having a stronger *Masculinity* values appeared to be more satisfied with the aesthetic of interior design, catering and IEQ, and had higher overall workspace satisfaction. According to Hofstede (2008), *Masculinity* values is negatively associated with the requirement for environmental comfort.

4) Employees with stronger *Long-term Orientation* values seem more satisfied with building location in terms of reflecting organisational power, building appearance, cleanliness and waiting time for lifts.

5) Employees who perceived the organisational culture of their office with more *Clan* characteristics appeared to be more satisfied with sense of belonging, aesthetics of interior design, branding of organisational culture, local amenities, property management, ease of supervision and communication, and most workstation qualities except privacy. In addition, they had higher overall workspace satisfaction and forgiveness index.

6) Employees who perceived the organisational culture of their office with more *Adhocracy* characteristics seemed more satisfied with most surveyed workspace items except green plants, transportation, remote working possibility, and catering. They also appeared to have higher overall workspace satisfaction.

7) Employees who perceived the organisational culture of their office with more *Market* characteristics were more satisfied with sense of belonging, local amenities, fitness, furniture comfort, view out of window, personalisation of desks and status symbols.

8) Employees who perceived the organisational culture of their office with more *Hierarchy* characteristics were more satisfied with building location reflecting organisational power, building appearance, branding of organisational culture, local amenities, cleanliness, waiting time for lifts, IEQ and view out of window, and have higher overall workspace satisfaction.

At between-office level (Table 6.36), the correlations between the mean scores of satisfactions with each workspace variables and the mean scores of individuals' value dimensions and organisational culture characteristics were tested. The results show that:

1) In offices where employees had stronger *Uncertainty Avoidance*, employees' satisfaction with of variables about property management issues, catering, IEQ, and furniture comfort was lower.

2) In offices where employees had stronger *Masculine*, employees' satisfaction with view out of windows appeared to be higher.

Table 6.36 Correlation between cultures, workspace satisfaction and forgiveness at the between-office level

	Spearman's rho (n=8)								
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
SO1.Location reflecting organisational power	0.205	-0.395	0.611	-0.036	-0.156	0.048	-0.024	0.187	0.671
SO2. Building appearance	0.263	-0.238	0.214	-0.095	0.333	-0.262	-0.19	0.18	0.31
SO3. Sense of belonging	-0.048	-0.619	0.452	0.048	-0.667	0.357	0.167	0.024	0.595
SO4. Aesthetics of interior design	0.335	-0.667	0.262	0.5	-0.333	0.262	0.333	-0.18	0.333
SO5. Branding of organisational culture	0.012	-0.667	0.643	0.048	-0.476	0.429	0.595	0.072	0.595
SO6. Green plants	-0.301	-0.707	0.012	-0.108	-0.228	0	-0.096	-0.199	0.096
SO7. Breakout space	0.455	-0.476	-0.095	0.571	-0.048	-0.143	-0.167	-0.347	0.048
LO1. Local amenities	-0.12	0.071	-0.095	-0.143	-0.119	-0.31	-0.738*	-0.108	0.048
LO2.Transportation	-0.419	-0.333	0.31	-0.5	-0.286	-0.143	-0.143	-0.048	0.262
PM1. Cleanliness	0.157	-0.731*	0.084	0.443	-0.156	-0.096	0.192	-0.572	-0.048
PM2. Waiting time for lifts	0.275	-0.714*	0.571	0.405	-0.429	0.262	0.286	-0.168	0.548
PM3. Toilet	-0.145	-0.934**	-0.06	0.252	-0.383	-0.06	0.108	-0.62	-0.084
FC1. Ease of communication	0.151	-0.719*	-0.024	0.335	-0.335	0.06	0.048	-0.283	0.156
FC2. Ease of supervision	-0.024	-0.476	0.048	0	-0.238	0.19	0.024	0.108	0.286
FC3. Remote working possibility	0.228	-0.429	-0.262	0.071	0.286	-0.381	-0.024	-0.192	-0.143
AM1. Fitness facilities	0.084	-0.429	-0.405	0.024	0.095	-0.238	-0.048	-0.144	-0.167
AM2. Catering	0.180	-0.762*	0.429	0.5	-0.476	0.167	0.238	-0.455	0.31
AM3. Library	0.000	-0.5	-0.5	-0.5	-	0.5	0.5	0.5	0.5
WS1. Indoor environment quality	-0.204	-0.738*	0.5	-0.19	-0.405	0.119	0.333	-0.096	0.429
WS2. Furniture comfort	-0.275	-0.881**	0.167	0.262	-0.738*	0.214	0.19	-0.587	0.095
WS3. Space amount	0.371	-0.595	-0.048	0.571	-0.214	-0.095	-0.048	-0.455	0.048
WS4. View out of windows	0.139	-0.311	0.743*	-0.072	-0.551	0.491	0.419	0.416	0.862**
WS5. Personalisation possibility	0.343	-0.599	0	0.335	-0.072	-0.18	-0.06	-0.271	0.144
WS6. Privacy	0.331	-0.634	0.049	0.586	-0.342	0.171	0.22	-0.331	0.146
WS7. Expression of status	0.012	-0.69	0.238	0.31	-0.357	-0.048	0.214	-0.575	0.048
Overall workspace satisfaction	0.205	-0.695	0.491	0.347	-0.503	0.443	0.443	-0.024	0.551
Forgiveness	0.455	0.238	0.667	0.31	-0.381	0.810*	0.738*	0.599	0.714*

Note: *p<0.05, **p<0.01

3) In offices where employees had stronger *long-term orientation*, there was lower satisfaction with furniture comfort.

4) Employees in office with a stronger *Adhocracy* culture seem less satisfied with local amenities.

5) Employees in office with a stronger *Hierarchy* culture appeared to be more satisfied with view out of windows.

6) Employees' forgiveness was positively correlated with *Clan, Adhocracy* and *Hierarchy*.

In general, the number of correlations at between-office level was fewer than that of correlations at the individual level, but the correlation coefficients were stronger.

6.9.3 Culture, workspace and psychological adaptation

The case studies reveal that employees' workspace expectations varied from one office to another. The correlations between workspace variables and employees' overall workspace satisfaction were different across offices. These differences might be related to the differences in employees' values as well as the perceived organisational cultures between different offices. For example, according to the literature, the emphasis on ease of supervision and expression of status in the AAGZ office seems related to its stronger *Power Distance*.

To verify the assumptions with hard data and understand how employees with different values psychologically adapt themselves in different organisational cultures, the study further examined how employees' work-related values and perceived organisational culture correlate with the intensity of expectations for different workspace variables and workspace components. In the analysis, the intensity of expectations were correlated based on correlation coefficients between each workspace variable and overall workspace satisfaction (insignificant correlation coefficients were included in the analysis) . But the six workspace components were not put into analysis as in three case studies, they could not explain the variance of employees' overall workspace satisfaction. Table 6.37 summarises the results. It shows that:

1) *Power Distance* was positively associated with the importance of status symbols. In office where status symbols are positively reflective of overall workspace satisfaction, employees appeared higher PDI.

2) *Uncertainty Avoidance* was positively associated with the importance of fitness facilities. It seems that in office where fitness facilities are positively reflective of

overall workspace satisfaction, employees appeared higher UAI. This finding is suspicious, hard to explain based on Hofstede's (2018) theoretical proposition.

3) *Long-term Orientation* is positively associated with the importance of building location reflecting organisational power. In office where using building location to reflect organisational power is positively reflective of overall workspace satisfaction, employees appeared higher LTO. It seems that showing power is recognised as a practical need by the Chinese as creating relationships based on status is recognised as a feature of Long-*term Orientation* culture (Hofstede, 2018).

4) In offices where the organisational culture was perceived as having stronger *Adhocracy* feature, employees gave more importance to green plants and view out of windows. This finding is also suspicious, hard to explain based on Cameron and Quinn's (2006) theoretical proposition.

These results confirm the connection between culture and workspace expectations, although the number of significant correlations is limited and some correlations are suspicious. It is possible that the physical workspace also affects employees' psychological adaptation, as *secondary control* was suggested to dominate the environmental behaviours of Chinese people in the literature. To test the assumption, the correlations between physical workspace parameters and the expectation strength for each workspace variables were further tested. Table 6.38 summarises the results.

According to the results, some workspace characteristics had positive correlations with employees' workspace expectations while others had negative correlations. Based on them, it is suggested that there are two types of effect of physical workspace design on office workers' physiological accommodative behaviours.

The first is positive adaptation. In this type of adaptation, when a workspace characteristic is positive, employees raise their expectation for related workspace issues; and when the workspace characteristic is negative, employees lower their expectation for related workspace issues accordingly. Accommodative behaviours of this type identified in this study include:

1) The poorer the location and lower-end the building, the lower the expectation for buildings appearance, breakout space, waiting time for lifts, furniture comfort, view out of windows and privacy. It appears that employees tend to have a higher expectation for the appearance and comfort of workspace for office in city centres.

Table 6.37 Correlation between workspace expectations and cultural dimensions at the between-office level

Workspace expectations	Spearman's rho (n=8)								
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
R-SO1.Location reflecting organisational power	0.012	0.095	-0.405	-0.238	0.810*	-0.571	-0.310	-0.012	-0.429
R-SO2. Building appearance	-0.132	-0.310	-0.286	-0.119	0.357	-0.524	-0.619	-0.275	-0.238
R-SO3. Sense of belonging	-0.359	-0.500	-0.119	-0.310	-0.119	-0.238	0.357	-0.371	-0.262
R-SO4. Aesthetics of interior design	0.168	-0.333	-0.286	0.262	0.286	-0.143	-0.119	-0.168	-0.190
R-SO5. Branding of organisational culture	0.263	0.119	-0.310	0.476	0.548	-0.190	-0.190	-0.275	-0.452
R-SO6. Green plants	-0.299	-0.071	0.238	-0.619	-0.024	0.095	0.714*	0.299	0.119
R-SO7. Breakout space	0.144	-0.429	-0.310	0.167	0.381	-0.357	-0.095	-0.299	-0.286
R-LO1. Local amenities	0.515	0.333	0.143	-0.190	0.286	-0.167	-0.190	0.623	0.476
R-LO2.Transportation	-0.072	-0.310	-0.500	-0.119	-0.119	-0.048	0.214	-0.036	-0.214
R-PM1. Cleanliness	-0.563	-0.143	-0.024	-0.667	0.000	0.238	0.452	0.371	0.000
R-PM2. Waiting time for lifts	0.383	-0.310	0.095	0.048	0.452	-0.357	0.000	0.012	0.119
R-PM3. Toilet	-0.144	-0.333	-0.190	-0.381	0.190	-0.619	0.000	-0.323	-0.262
R-FC1. Ease of communication	0.347	0.024	-0.214	0.143	0.595	-0.214	0.143	0.060	-0.214
R-FC2. Ease of supervision	0.060	-0.405	-0.214	-0.286	0.214	-0.595	-0.238	-0.144	-0.048
R-FC3. Remote working possibility	0.551	0.095	-0.071	0.238	0.571	-0.214	0.190	0.108	-0.071
R-AM1. Fitness	0.539	0.786*	-0.095	-0.238	0.643	-0.286	-0.167	0.683	0.143
R-AM2. Catering	-0.036	-0.071	0.214	-0.167	-0.214	0.119	0.619	0.036	0.095
R-AM3. Library	0.366	0.246	0.387	0.365	0.500	0.200	0.232	0.346	0.293
R-WS1. IEQ	-0.325	-0.132	-0.228	0.263	-0.060	0.335	0.395	-0.331	-0.479
R-WS2. Furniture comfort	0.012	0.190	-0.548	-0.119	0.238	-0.190	0.262	-0.024	-0.476
R-WS3. Space amount	0.175	-0.120	-0.455	-0.024	0.311	-0.299	0.204	0-.078	-0.335
R-WS4. View out of windows	0.204	-0.048	0.167	0.071	0.143	0.238	0.762*	0.180	0.048
R-WS5. Personalisation possibility	0.180	-0.024	-0.095	-0.381	0.310	-0.190	0.452	0.347	0.048
R-WS6. Privacy	0.347	-0.452	-0.238	0.476	0.119	-0.381	-0.143	-0.551	-0.238
R-WS7. Expression of status	0.719*	0.190	0.143	0.238	0.143	0.048	0.357	0.371	0.333

Note: *p<0.05, **p<0.01.
PDI = Power Distance Index, UAI = Uncertainty Avoidance Index, MAS = Masculinity Index, IDV = Individualism Index, LTO = Long-term Orientation Index.

Table 6.38 Relationships between workspace expectations and physical workspace parameters: based on correlations coefficients (Spearman's rho) (n=8)

Workspace expectations	Location of the office	Accessibility of the office	Building type	NIA / person	Layout types	Place of top managers	Place of middle managers	Visual accessibility of		Access to windows	Work area per desk			Proximity to meeting rooms
								Top managers	Middle managers		Top managers	Middle managers	Ordinary employees	
R-SO1.Location reflecting organisational power	-0.43	0.109	-0.576	0.371	-0.507	0.546	-	-0.171	-0.126	-0.287	0.881**	0.543	0.313	-0.498
R-SO2. Building appearance	-0.535	0.764*	-0.826*	0.299	-0.056	0.327	-	-0.203	-0.504	-0.183	0.643	0.6	0.386	0.077
R-SO3. Sense of belonging	-0.222	-0.327	0.075	0.228	-0.282	-0.436	-	-0.187	0.378	-0.313	-0.5	-0.086	0.313	-0.358
R-SO4. Aesthetics of interior design	-0.848**	0.218	-0.676	0.407	-0.282	0.764*	-	0.109	-0.63	-0.339	0.738*	0.943**	0.386	-0.37
R-SO5. Branding of organisational culture	-0.339	-0.327	-0.05	0.683	-0.732*	0.546	-	-0.171	-0.126	-0.678	0.571	0.086	0.41	-0.575
R-SO6. Green plants	0.143	-0.436	0.075	-0.371	-0.056	-0.436	-	0.312	0.504	0.248	-0.31	-0.086	-0.301	-0.14
R-SO7. Breakout space	-.913**	0.109	-0.651	0.575	-0.394	0.655	-	-0.031	-0.504	-0.483	0.619	0.771	0.602	-0.524
R-LO1. Local amenities	-0.183	0.436	-0.451	-0.347	0.62	0.655	-	0.218	-0.504	0.639	0.571	0.429	-0.048	0.115
R-LO2.Transportation	-0.561	-0.109	-0.175	0.036	-0.056	0.436	-	-0.062	-0.126	-0.026	0.119	-0.086	0.145	-0.562
R-PM1. Cleanliness	-0.065	0.109	-0.476	-0.563	-0.056	-0.109	-	0.483	0.126	0.365	0.31	0.429	-0.602	0.064
R-PM2. Waiting time for lifts	-0.848**	0.218	-0.776*	0.359	-0.056	0.655	-	0.218	-0.63	-0.156	0.643	0.886*	0.542	-0.281
R-PM3. Toilet	-0.274	-0.109	-0.075	0.347	-0.169	-0.218	-	-0.405	0.252	-0.261	-0.262	-0.086	0.554	-0.396
R-FC1. Ease of communication	-0.626	-0.327	-0.35	0.431	-0.507	0.764*	-	0.109	-0.252	-0.352	0.714*	0.6	0.361	-0.715*
R-FC2. Ease of supervision	-0.665	0.436	-0.626	0.228	0.169	0.327	-	-0.203	-0.378	-0.013	0.262	0.543	0.554	-0.217
R-FC3. Remote working possibility	-0.574	-0.436	-0.2	0.455	-0.394	.764*	-	0.109	-0.252	-0.313	0.571	0.486	0.446	-0.715*
R-AM1. Fitness facilities	0.156	-0.109	-	-0.204	0.169	0.655	-	-0.031	-	0.443	0.619	0.029	-0.096	-0.319
R-AM2. Catering	0.183	-0.655	0.501	-0.072	-0.056	-0.436	-	0.062	0.504	-	-0.667	-0.371	-0.012	-0.243
R-AM3. Library	0.866	-	0.5	-	-	-	-	-	-	-	0.5	-0.5	-0.5	0.866
R-WS1. IEQ	0.007	-0.659	0.34	0.295	-0.794*	-0.165	-	0.039	0.38	-0.597	-0.108	-0.314	-0.103	-0.418
R-WS2. Furniture comfort	-0.052	-.0764*	0.451	0.24	-0.507	0.218	-	-0.343	0.504	-0.274	-0.048	-0.486	0.157	-0.907**
R-WS3. Space amount	-0.577	-0.439	-0.076	0.386	-0.397	0.549	-	-0.172	-	-0.315	0.263	0.029	0.43	-0.874**
R-WS4. View out of windows	-0.287	-0.764*	0.1	0.108	-0.394	0.218	-	0.405	0.126	-0.183	0.048	0.029	0.024	-0.562
R-WS5. Personalisation possibility	-0.443	-0.327	-0.25	-0.06	-0.056	0.436	-	0.187	-	0.156	0.286	0.257	0.12	-0.6
R-WS6. Privacy	-0.756*	-0.109	-0.15	0.790*	-0.282	0.436	-	-0.312	-0.378	-0.639	0.048	0.143	0.880**	-0.536
R-WS7. Expression of status	-0.339	-0.436	0.1	0.06	0.169	0.655	-	0.218	-0.252	0.143	0.143	0.086	0.229	-0.472

Note: *p<0.05, **p<0.01.

Table 6.38 (Continued)

	Expression of organisational identity	Colour	% of enclosed office	% of open-plan space	% of supporting area	% of primary circulation	Breakout space	Catering	Canteen	Fitness facilities	Library	Shower room	Nursing room	Workstation Shape	Partition height	Partition direction
R-SO1.Location reflecting organisational power	0.764*	0.385	-0.238	-0.524	0.452	-0.126	0.436	0.674	0.124	-	0.327	0.378	0.378	-0.169	0.577	0.408
R-SO2. Building appearance	0.873**	0.591	-0.31	0.095	0.048	0.18	0.405	0.536	0.385	-	0.655	0.756*	.0756*	-0.282	0.495	0.432
R-SO3. Sense of belonging	-0.327	-	0.476	0.095	-0.333	0.126	-0.265	-0.11	0.509	-	-0.218	0.378	0.378	-0.62	0.096	0.346
R-SO4. Aesthetics of interior design	0.873**	0.495	-0.405	-0.429	0.524	-0.126	0.764*	0.866**	0.399	-	0.327	0.504	0.504	-0.394	0.784*	0.679
R-SO5. Branding of organisational culture	0.546	-0.055	0.071	-0.905**	0.810*	-0.324	0.655	0.866**	0.22	-	0.109	-	-	-0.282	0.522	0.482
R-SO6. Green plants	-0.436	0.014	0.381	0.143	-0.333	-0.162	-0.655	-0.481	-0.192	-	-0.546	-0.126	-0.126	0.056	-0.275	-0.247
R-SO7. Breakout space	0.764*	0.385	-0.262	-0.452	0.5	-0.18	0.655	0.866**	0.591	-	0.218	0.63	0.63	-0.62	0.770*	0.778*
R-LO1. Local amenities	0.218	0.055	-0.952**	0.167	0.19	-0.36	0.078	-0.041	-0.316	-		-	-	0.394	-0.041	-0.235
R-LO2.Transportation	0.109	0.385	-0.476	-0.095	-0.048	0.396	0.514	0.247	0.316	-	0.218	0.378	0.378	-0.394	0.674	0.593
R-PM1. Cleanliness	0.327	.770*	0.048	0.19	-0.357	0.162	-0.187	-0.151	-0.344	-	0.109	0.126	0.126	0.282	0.192	-0.086
R-PM2. Waiting time for lifts	0.655	0.206	-0.381	-0.262	0.524	-0.487	0.296	0.632	0.399	-	-0.109	0.504	0.504	-0.394	0.399	0.432
R-PM3. Toilet	-0.218	-0.096	0.167	0.095	-0.214	0.09	-0.203	-0.027	0.55	-	-0.109	0.504	0.504	-0.62	0.096	0.346
R-FC1. Ease of communication	0.546	0.11	-0.262	-0.786*	0.762*	-0.505	0.546	0.770*	0.179	-	-0.109	0.126	0.126	-0.282	0.591	0.494
R-FC2. Ease of supervision	0.327	0.289	-0.476	0.214	-0.071	0.09	0.187	0.247	0.536	-	0.218	0.756*	0.756*	-0.507	0.385	0.469
R-FC3. Remote working possibility	0.327	-0.165	-0.286	-0.786*	0.833*	-0.703	0.436	0.674	0.179	-	-0.327	-	-	-0.282	0.412	0.395
R-AM1. Fitness facilities	-	-0.234	-0.762*	-0.333	0.429	-0.378	0.109	-	-0.536	-	-0.109	-0.378	-0.378	0.507	-0.041	-0.296
R-AM2. Catering	-0.764*	-0.44	0.429	0.024	-0.19	-0.162	-0.514	-0.44	0.041	-	-0.655	-0.252	-0.252	-0.169	-0.344	-0.136
R-AM3. Library	-	-0.866	0.5	-0.5	0.5	-0.5	-	-	-0.866	-	.	-0.866	-0.866	0.866	-0.866	-0.866
R-WS1. IEQ	0.055	0.083	0.683	-0.599	0.216	0.072	0.243	0.346	0.09	-	-0.055	-0.19	-0.19	-0.227	0.325	0.317
R-WS2. Furniture comfort	-0.327	-0.179	-0.048	-0.571	0.19	0.162	0.296	0.151	0.096	-	-0.109	-0.126	-0.126	-0.282	0.399	0.371
R-WS3. Space amount	0.11	0.048	-0.299	-0.539	0.371	-0.073	0.494	0.484	0.373	-	-0.055	0.253	0.253	-0.51	0.629	0.628
R-WS4. View out of windows	-0.109	-0.165	0.214	-0.571	0.452	-0.541	-0.016	0.22		-	-0.655	-0.252	-0.252	-0.169	0.124	0.148
R-WS5. Personalisation possibility	-	0.096	-0.381	-0.238	0.19	-0.27	0.047	0.11	0.041	-	-0.327	0.126	0.126	-0.169	0.289	0.222
R-WS6. Privacy	0.218	-0.165	-0.119	-0.381	0.452	-0.198	0.546	0.674	0.825*	-	-	0.504	0.504	-0.845**	0.509	0.766*
R-WS7. Expression of status	-0.218	-0.426	-0.548	-0.381	0.548	-0.631	0.187	0.151	-0.014	-	-0.546	-0.252	-0.252	-0.056	0.055	0.074

Note: *p<0.05, **p<0.01

2) The closer to employees the top managers, the higher employees' expectations for communication convenience, remote working possibility and interior aesthetic design. It is possible that employees working under the rigid supervision of direct managers, wish to have freedom to talk with colleagues and work away from the workstation. But the correlation between proximity to managers and interior aesthetic design is difficult to explain.

3) The stronger the status symbols (e.g. the bigger rooms for managers), the greater the expectations for the expression of organisation power, building image, and building services (e.g. waiting time for lifts). This is consistent to the finding that in office with *Hierarchy* culture, employees may have stronger masculine values. They have a greater desire to using the building they work in to show their social status.

4) The lower the density or the bigger the size of employees' workstation, the stronger expectation for privacy. It appears that greater personal space enables employees to aware the possibility of having privacy. In contrast, in offices with very high density, having privacy is nearly impossible and thereby is less concerned.

5) The higher enclosure level of workstations, the greater the desire for breakout space, aesthetic design of workspace and privacy. It is possible that when workstations become personal territory having good privacy, common space with aesthetic design is expected to reduce the dull feeling of the workspace.

6) The stronger the expression of organisation identity in interior design, the higher the expectation for building image, location and breakout space. It seems that branding of organisation will increase employee's expectation for organisational power.

7) In offices having greater a share of supporting space, employees had greater expectation for branding of organisational culture, communication convenience and remote working possibility. It seems that larger supporting area would encourages more communication at the workplace and it is a key place to brand organisational culture in employees' perception.

8) The better the breakout space and amenities e.g. canteen, catering and shower rooms office provide, the higher the expectation for building appearance, aesthetics of interior design, branding of organisational culture, communication and supervision convenience, and privacy. It appears breakout space and amenities are associated with the expression of organisational power and culture, and they encourage communication between employees. But their correlation between canteen and the concern for privacy is difficult to understand.

9) The greater the availability of meeting rooms, the more important the communicational convenience, remote work possibility, furniture comfort and space amount of personal workstations in employees' expectation. The correlation between expectations for communicational convenience and remote work possibility and availability of meetings are reasonable. Yet, the correlation between expectations for furniture comfort and space amount of personal workstations and availability of meeting rooms are difficult to explain.

The second type is negative adaptation. In this type of adaptation, when a workspace characteristic is positive, employees have less concern for related workspace issues; and when the workspace characteristic is negative, employees raise concern for related workspace issues accordingly. Accommodative behaviours of this type identified in this study include:

1) In offices where the rooms of top managers were bigger, employees have greater concern for communication convenience. This is because organisations having stronger hierarchy culture usually have stronger internal control, and their employees are less empowered to communication freely while managers are less accessible.

2) In contrast, in offices having more space for open-plan area, employees had less concern for the branding of organisational culture, communication and remote working possibility. The more open the layout, the less concern for indoor environment quality and branding of organisational culture. This might be because in open-plan office employees have more opportunities to communicate and move around the office. And due to the fact that they are not able to control the indoor environment in open-plan office, they tend to give up the concern for it. At the same time, while in offices with more enclose rooms as managers' personal territory having space to brand organisational culture could be a problem, in offices mainly consisting of open-plan space it is not a difficulty.

3) The stronger the expression of organisation identity in interior design, the weaker concern for catering. This finding might be because organisations that have more branding offices usually have better catering facilities or might be because their culture are external-focused, for example, the *Market* culture, and employee tend to pay less attention to amenities.

4) In offices having more space for enclosed rooms, employees have less expectation for on-site amenities and local amenities. It appears that hierarchy culture would

depress employees' expectation for amenities due to the relatively tough environment.

The correlation coefficients are stronger, empirically supporting the importance of *secondary control* in Chinese office workers workspace accommodative behaviours. It appears that Chinese employees may raise or lower their workspace expectations according to the physical setting of organisations. On the one hand, the improvement of certain workspace conditions might encourage employees to have higher expectations for workspace, while poor conditions of workspace might lower employees' expectations for workspace. For example, the positive correlation between the space proportion of supporting area and the importance of remote working possibility suggests that the increase of supporting area such as breakout space available in the workspace may raise employees' expectations of being able to work remotely or to communicate more conveniently. On the other hand, the improvement of certain workspace qualities might depress some other workspace desires, while the insufficiency of them by contrast might make employees more concerned about related workspace issues or lead them to look for compensations. For example, according to the data, if there is not enough meeting rooms, or open-plan space at workplace, employees also seem to worry about communication convenience.

Some connections are different from what people usually think. For instance, the data analysis showed that the lower partitions at personal workstations did not raise employees' concern for privacy. Rather, they in fact lowered employees' desire for privacy.

The connection between workspace expectation and physical workspace parameters might explain why the differences in employees' workspace expectations did not always follow the cultural differences between case studies. Moreover, it appears that the connection between workspace expectations and physical space conditions is more intensive than connection between workspace expectations and cultures.

6.9.4 Culture and workspace personalisation

The case studies show the industrial differences in employees' workspace personalisation behaviours. In order to understand the extent to which the difference has been affected by cultural differences, the correlation between organisational culture and personalisation frequency and the correlation between employees' values and personalisation frequency were tested respectively. The results are summarised in Table 6.39. It shows personalisation frequency is not associated with neither employees' values nor organisational culture.

Table 6.39 Correlation between personalisation frequency and cultural dimensions

	Spearman's rho (n=8)								
	PDI	UAI	MAS	IDV	LTO	Clan	Adhocracy	Market	Hierarchy
Personalisation frequency	0.03	-0.419	-0.407	0.216	0.263	-0.395	-0.228	-0.488	-0.383
Sig. (2-tailed)	0.944	0.301	0.317	0.608	0.528	0.333	0.588	0.22	0.349

Note: *p<0.05, **p<0.01

6.10 Summary of the study

This study investigated organisational effects on workspace design, workspace cognition and employees' accommodative behaviours. Findings show that workspace design varied across offices, highlighting organisational effects. However, certain similarities within each industry can still be found, reflecting industrial effects.

Regional effect on employees' culture values is significant, but the effect of person-environment fit tended to lead to a result that organisational culture with certain feature tend to attract and retain employees with certain values and thus cause the differences in employees' values between offices.

According to Section 6.9.1, the workspace perception and interpretation patterns of Chinese employees in this study appeared distinctive and showed the continuous influence of their cultural history. Some patterns that workspace characteristic that may affect the interpretation of organisational culture were identified. And it is also found that personal values may also affect the perception of organisational culture.

According to Section 6.9.2, many significant correlations between organisational culture, employees' values and workspace satisfaction were found but connections were weak at the individual level. At the between-office level, organisational culture *Clan, Adhocracy* and *Hierarchy* are found to strongly associated with employees' *forgiveness*.

In regard to employees' workspace accommodative behaviours, findings from the comparison of case studies and statistical tests in Section 6.9.3 suggest the importance of *secondary control* in Chinese workspace accommodative behaviours. If is found that employees changed their workspace expectations dramatically according to the different

workspace realities. But their psychological adaptation behaviours are not random. Some reliable correlations between workspace characteristic and the importance of workspace variables were generated. Workspace personalisation appear to be of lower importance in Chinese employees' workspace accommodative behaviours, and industrial effects on workspace personalisation appeared stronger that the effects of other levels of culture.

7 Discussion

This research composes two separated studies. Study 1 investigated the national trends of workspace preferences and cognition as well as their regional and industrial differences in China. Study 2 further examined how organisational factors including organisational culture and workspace affect employees' workspace satisfaction, expectation and accommodative behaviours and how the effects moderate the influence of national, regional and industrial cultures. They address pre-organisational and intra-organisational influences respectively. However, as workspace accommodation is a dynamic process involving both pre-organisational and intra-organisational interaction, it is necessary to connect the findings of the two studies together so as to close the loop.

To this end, this chapter reviews and compares the findings of two studies presented in the former chapters while comparing them to the literature, and at the same time. tries to answer research questions asked in the Chapter 1.

This chapter consists of five main sections:

1) Section 7.1 discusses the cultural characteristics of respondents to reflect cultural values of Chinese employees and the difference influence of regional, industrial and organisational effects;

2) Section 7.2 discusses the cultural influence on respondents' initial workspace preferences in respond to research question Q1 proposed in Chapter 1;

3) Section 7.3 discusses the cultural influence on respondents' workspace cognition in respond to research question Q2 proposed in Chapter 1. How office workers in China perceive workspace (the perception pattern), how they perceive organisational culture (interpretation of spatial meanings) and how they evaluate the performance of workspace (Satisfaction and forgiveness) are addressed;

4) Section 7.4 discusses the cultural influence on respondents' accommodative behaviours. The adaptive preference of office workers in China is addressed as well as the influence of regional, industrial and organisational cultures on it.

5) Section 7.5 discusses interplay of difference levels of cultures at workplace.

7.1 Chinese employees' cultural values

7.1.1 The national culture and regional, industrial differences

Perhaps the most widely endorsed characteristic of Chinese culture in the literature is its high *Power Distance* and *Collectivism*. Many Chinese managerial concepts such as paternalistic leadership and harmony are believed to be rooted in them (Leung, 2008). Chinese are also known for their emphasis on thrift and persistence, characteristics encouraged by Confucianism and described as *Long-tern Orientation* by Hofstede (2008). Besides, according to Hofstede's cultural index, Chinese culture is high in *Masculinity* but relatively low in *Uncertainty Avoidance* (The Hofstede Centre, 2016), which means that the Chinese place much emphasis on career success while caring less about job security and ambiguity. These characteristics form the stereotype of Chinese culture and are widely referred to in the study of Chinese management.

However, the research findings seem to conflict with the stereotype. The results of *Study 1* show that respondents' culture is medium in *Power Distance, Masculinity Uncertainty Avoidance* and *Individualism* but very strong in *Long-term Orientation*.

This inconsistency might be caused by the selection of case studies. The samples of *Study 1* come from seven Chine cities in east coastline where the economy is developed. As such, the result might not reflect the trend of the whole nation. Triandis (1995) argued that as societies become wealthy, the need for interdependence among social members would be lessened. The proposition is supported by the findings of cross-regional comparison in Study 2. Shanghai and Guangzhou, where the economies are more developed than other cities in China, appeared to have a stronger individualistic culture than other cities.

The regional cultures of respondents in Shanghai and Guangzhou also had similar strong *Masculinity* while the culture of respondents in other cities was lower in the dimension. This finding is inconsistent with the argument of Inglehart and Baker (2000) who suggest that economic development will push the culture towards a more tolerant, trusting, and participatory direction. This might be influenced by industrial difference as respondents in Shanghai and Guangzhou primarily came from manufacturing and professional services while in the group of other cities there was a higher proportion (62%) of respondents coming from other industries, which accounts for 35% in Shanghai and 26% in Guangzhou only. According to *Study 1*, employees in other industries had the lowest score in *Masculinity*.

Significant differences in industrial culture were also found in dimensions of *Power Distance,*

and *Individualism* in *Study 1.* Employees in manufacturing had the highest *Power Distance and Individualism,* and employees in other industries had the lowest. But, in *Study 2*, industrial difference in employees' values was insignificant.

The differences in regional culture were significant in both studies. Apart from the differences in *Individualism* and *Masculinity*, *Study 1* also found office workers in Guangzhou seemed to have strongest *Power Distance, Uncertainty Avoidance* and *Long-term Orientation,* and the *Power Distance* of employees in other cities was significantly owner than that in Shanghai or Guangzhou. In *Study 2,* significant regional differences were also found in *Power Distance* and *Masculinity*. Employees in Guangzhou had stronger *Power Distance* and *Masculinity* than their counterparts in Shanghai.

It appears that there were more regional differences and industrial differences in employees' cultural values. Regional effect on employees' cultural values tends to be stronger than industrial effect. According to Hofstede (2018), regional culture consist mainly values while industrial cultures consist of half value and half practices. This difference in cultural natures may account for the difference effect of these two cultures on employees' values.

It is also important to note that, the strong *Long-term Orientation* was common to all regions and industries. This may reflect a national trend.

7.1.2 Organisational effects

According to *Study 2*, at the between-office level there were significant correlations between organisational culture characteristic and employees' values (see Section 6.91, Table 6.33). In offices having stronger *Clan* culture, employees tended to have a weaker *Long-term Orientation* tendency; in offices having stronger *Hierarchy* culture, employees showed stronger *Masculinity* values; and in offices with stronger *Market* culture, employees showed stronger *Uncertainty Avoidance.* It appears that a particular organisational culture may attract and retain employees with particular values. According to the theories about person-environment fit, value congruence could significantly affect employees' job satisfaction (Erdogan et al., 2004) and turnover (Vandenberghe, 1999), and employees tend to select employers based on their personal traits and values (Turban et al., 2001).

Further, through stepwise regression analysis, Study 2 found that based on employees *Power Distance* Index and *Uncertainty Avoidance* Index, it is possible to predict the preferred organisational culture type (Table 6.34). This is supportive to the argument about the isomorphic relationship between organisational culture and local culture (Nelson and

Gopalan, 2003).

These findings partly explained the variety of employees' values between organisations. Clearly, different levels of culture dynamically interplay with each other in organisation. It is impossible to fully understand the cultural effects in Chinese workspace could not be done without understanding the different roles of difference levels of culture in difference workspace process. The effect per level of culture on initial workspace preferences, workspace cognition and workspace accommodation are discussed in the following sections.

7.2 Cultural influence on Chinese employees' workspace preferences

7.2.1 The influence of national culture

Initial workspace preferences are desires for workspace shaped by national, regional and industrial cultures and previous living and working experience before entering an organisation.

In this research, preferences have been defined as workspace factors that significantly influence employees' overall workspace satisfaction. Following this definition, *Study 1* used a linear regression model to identify workspace components that have significant regression coefficients for overall workspace satisfaction. The results show that, at the national level, 38% of variance in Chinese employees' overall workspace satisfaction was explained by the satisfaction with *Social environment* and *Workstation quality* (Table 5.1). *Functional comfort, Amenities, Property Management* and *Location* explained only 11% of the variation. The finding suggests that the social environment of workspace and the environmental quality of immediate workspace are two main workspace concerns of employees in China (although there remains 50% of overall workspace satisfaction explained by other non-space factors). And their importance appeared difficult to be moderated by regional and industrial effects in case studies. They all were strongly associated with overall workspace satisfaction irrespective of regional and industrial differences. Even in *Study 2*, they still appeared to have significant correlations with overall workspace satisfaction in five case studies but with varying importance.

In *Study 1*, further analysis on the importance of each surveyed workspace variable showed that size of workstations and sense of belonging ranked on top two (Table 5.2). They were followed by indoor environment quality (IEQ). The results of open-ended questions also supported these findings (Table 5.3). In respondents' answers, pleasant interpersonal

relationship and atmosphere was mentioned most frequently as a desirable workspace feature while space amount and indoor environment qualities such as air quality and thermal comfort were mentioned most frequently as desirable workspace features.

Table 7.1 Comparison of the five most popular workspace preferences between respondents in China, Finland and Thailand

Respondents in China	Respondents in Finland	Respondents in Thailand
Space amount	Comfort of workstation	Adjacency and locality of the space
Sense of belonging	Opportunities to concentrate	Subdivision of the whole building
Aesthetics of interior design	Accessibility of the buildings	Sharing idea about working environment
Indoor environment quality (IEQ)	Indoor environment quality (IEQ)	Openness
Building appearance	Opportunities to communicate	Building appearance

Source: Riratanaphong and Van der Voordt (2011) ; Rothe et al. (2011)

Table 7.1 compares the top 5 workspace preferences yielded in the regression analysis of *Study 1* with the findings of Rothe et al. (2011) in Finland and Riratanaphong and Van der Voordt (2011) in Thailand. It shows that, while indoor environment quality (IEQ) is equally emphasised by Chinese and Finnish, Chinese tend to focus on the psychological comfort of workspace, the Finnish tend to focus more on the functionality and physical comfort of workspace. Employees in Thailand, by contrast, pay more attention to the layout of offices. It is also noted that some important workspace factors in Finland or Thailand e.g. opportunities to concentrate, subdivision of the whole building and Sharing idea about working environment are not seen in the study. In fact, respondents did not mention them at all in both pilot study and field work. As such, these factors are missing in the WCS questionnaire. This result, in another side, reflect the distinctiveness of Chinese mental schema about workspace. And it also shows that the WCS questionnaire are cultural bounded, certain adaption is needed when implement it in another culture.

According to *Study 1*, the respondents' culture tended towards collectivism in general. This may explain why space amount and social aspects of workspaces, such as sense of belonging, building appearance and interior design aesthetics were stressed. In a collectivist culture, social orders are usually built based on interpersonal relationships and

the spatial concept is in fact built based on territoriality (Goodsell, 1988). Identifying “our people” and “other people” and showing the status of each person in a social network are important social needs. Size of personal space, building appearance and interior design all may help space users to build their social image. Consistent with this, some interviewees in the fieldwork reported that working in a prestigious building or an office with extravagant design would make them feel “having face” -- getting recognition from other social members.

Wright et al. (2008) suggested that an important feature of contemporary Chinese culture is selfishness in collectivism. It is posited that Chinese, while paying much attention to the social background of organisations, are practical to personal interests at the workplace. This may also explain the simultaneous emphasis on the social fact of workspace and personal space.

This tendency is not new. Chapter 3 has shown how collectivist particularism and the rigid social hierarchy shaped the space planning of ancient Chinese family and workplace, in which walls and “rituals” (order) were emphasised. Today, although the physical walls defining social boundaries have been removed in city planning and buildings are designed as more open to the public, the mentality does not change. Most Chinese people would still look for spatial cues to define social and personal territory and create social identity. In fact, in *Study 2* the case studies further revealed that the spatial patterns of current Chinese workspace (See Figure 6.32) have many similarities with those of ancient Chinese administrative buildings described in Chapter 3. The important influence of the nation’s cultural traditions should not be ignored.

Apart from the similarity described in Figure 6.32, three other similar space characteristics found in the case studies of *Study 2* can be reflected to represent national workspace pretences too. In general,

1) open-plan layout was common to all case studies;

2) The study found that Chinese workspace tends to have a high density. The average density of the case studies is 6.5 m^2 per desk (NIA). This number is just over half of that of UK offices reported by British Council for Offices in 2013 (11 m^2 per person, Harris and Bedford, 2013);

3) Enclosed rooms were used as status symbols. Ordinary employees were usually accommodated in open-plan area while executives and middle managers were accommodated with cellular rooms.

It is a surprise a surprised to find the high density in Chinese workplace while space amount

was ranking on the top of employees' workspace preferences. Maybe it is just the high density of workspace render workspace amount become a serious concern.

7.2.2 Regional and industrial effects

In *Study 1*, based on regression models created for different regions and industries, it appeared that in general, workspace variables significantly associated with overall workspace satisfaction were mostly loaded in the components of *Workstation quality* and *Social environment* regardless regional and industrial differences. However, a close look showed that workspace variables associated with overall workspace satisfaction varied across regions and industries. Regional and industrial differences are obvious. Nevertheless, the importance of sense of belonging was common for all regions and industries. This highlighted the importance of this variable in the design of Chinese workspace. This finding is in consistent with the argument of Nevis (1983), reflecting a collectivist culture.

Study 2 showed that the overall workspace satisfaction of respondents in different offices in Guangzhou was commonly associated with aesthetics of interior design, toilet, furniture comfort, space amount and expression of status; the overall workspace satisfaction of respondents in different offices of manufacturing organisations was commonly associated with aesthetics of interior design, branding or organisational culture and waiting time for lifts. The workspace preferences of employees in Shanghai and in the graphic design industry appear to be divergent across organisations (see Table 6.26 and Table 6.29). These findings suggest that whether there is a regional or industrial preference for workspace is case-dependent. In some regions and industries, there may be common workspace preferences irrespective of organisational effects, but in some other regions and industries, employees' workspace preferences vary dramatically across offices. But due to the limited number of regions and industries studied in this research, the researcher could not further investigate the reason behind that.

Some within-industry similarities in physical workspace design found in *Study 2* may also reflect industrial effects on workspace preferences. It is found that organisations in the manufacturing sector tended to locate their offices in high-end properties in city centres (except the JJGZ office) while proximity to clients was prioritised by graphic design firms. Additionally, workspace of graphic design firms showed a higher density in average (See Table 6.25) and preferred small rectangle desks. The spatial types in graphic design offices were also simpler with less meeting rooms and amenities.

But the case studies of *Study 2* show rarely intra-regional similarity in workspace design. It appears that there is no such thing like “Shanghai workspace” or “Cantonese workspace”.

Another important finding is, according to *Study 1,* not all the workspace preferences was in sync with regional or industrial value differences. For example, the data showed that although respondents in Guangzhou and Shanghai had similar IDV, privacy appeared to have a significant correlation with on overall workspace satisfaction in Shanghai while the effect in Guangzhou is not significant. This is contradicted with the literature. It appears that cultural values are not the solo factor affecting workspace preferences. And if so, what are the rest factors and how they affect workspace preferences? Due to the limitation of sample size, the author is unable to further explore to which extent the differences in individuals’ cultural values may explain the variance in workspace preferences. As a result, we cannot possible to know whether there are other factors affecting workspace preferences or no.

To solve the question, in the future based on huge sample size, respondents could be divided into groups randomly. Within-group regression coefficient of each survey workspace factors to overall workspace satisfaction can be tested per group to reflect the importance of each workspace factors. After that, the influence of each cultural dimensions on the importance of each workspace variables can be tested through regression analysis by using the group means of each cultural dimension as independent variables and the importance of each workspace factor as dependent variable.

7.3 Cultural influences on Chinese employees’ workspace cognition

Cognition, in this study, is defined as the process employees perceive, evaluate and understand their workspace and their organisational culture. It is the cognitive process that employees set up a subjective projection of their workspace and organisation in mind based on information collected by sensory organs at the workplace. According to the literature, e.g. Hall (1976, 1990), people’s cognition is culturally patterned. Based on the findings of the two empirical studies described in the former two chapters, some workspace cognition patterns in China could be discussed.

7.3.1 Cultural influence on workspace perception

Workspace perception patterns reflect how different workspaces elements are perceived and configured into different categories in office workers’ mind, and what office workers pay attention to and what they tend to overlook under the conditioning of different levels of culture. In other words, they are different ways that office workers from different cultures

collect and process spatial data based on sensory preference.

Based on the data collected during the two phases of fieldwork, principal component analysis (PCA) yielded six workspace components, suggesting that the workspace is perceived from six aspects in Chinese employees' mental schema. The six components do not replicate the hierarchy of workspace needs proposed by Vischer (2008). Rather, they are based on support aspects of works. For example, *Workstation quality* pertains to personal work area and *Social environment* is related to the social environment of workplace and organisational image. The remaining components are *Location*, *Property management* and *Functional comfort*.

British researcher Ian Donald (1994) also investigated how users experience their workspace through questionnaires in the UK. By using smallest space analysis, he found that office users in the UK perceive their workspace based on socio-spatial phenomena such as privacy and communication happened at three level of "territoriality": 1) the building, 2) office as a whole, and 3) workstation and its immediate work area. Clearly, Donald's finding is quite different from this research. Chinese employees have their own way to perceive and understand their workspace.

Further, what people value is what they pay attention to. As such, the importance of workspace factors may also reflect people's perception patterns. *Study 1* found that the *Social environment* and *Workstation qualities* are two aspects office workers pay more attention to than other workspace factors, as they have the strongest regression coefficients with overall workstations amongst the yield six workspace components, and this trend is common to all regions and industries. *Study 2* also found *a simil*ar trend in five out of eight case studies (JJGZ, JJSH, TTGZ, FFGZ, FFSH). According to the elaboration in last section, the trend is associated with the national culture and history.

In fact, the historical space perception patterns appear persistent. Figure 6.32 analysed the layouts of eight studied offices, it comes out that six of them are close to the historical pattern summarised in Figure 3.8 in Chapter 3. Like ancient Chinese administrative buildings, their layouts show that the distance from entrance (space deepth) is associated with organisational hierarchy. Executives or GM tended to be accommodated with rooms in the deepest place.

In general, the emperical studies reavel some distinctive features of Chinese workspace perception patterns. Realising the distinctiveness is highly important for understanding the spatial meanings of Chinese workspace.

7.3.2 Cultural influence on the interpretation of workspace meanings

Based on perceived spatial data, office workers will further judge what these spatial cues mean and then decide their further behaviours. According to Schein (2010), an important basis that guiding and regulating employees organisational behaviours is organisational culture. Thus, *Study 2* examined the relationship between workspace characteristics and perceived organisational culture. It is found that, although different organisations appeared to have different standards or considerations for workspace design, each has its own spatial "language" to communicate the organisation's core mission and values, and to demonstrate organisational structure and organisational requirements for employees, some common some patterns in regard to the interpretation of spatial meanings at Chines workspaces were generated. it seems that, in Chinese context (see Figure 6.31):

1) The more visible are top managers at the workplace, the less formal or stronger sense of being in control employees feel about the organisational culture. As a result, the organisational culture is perceived as having more *Clan*, *Adhocracy* or *Hierarchy* characteristics.

2) The more egalitarian allocation of windows, the greater sense of internal stability and harmony the space creates, and thus the more *Market* or *Hierarchy* alike employees feel about the organisational culture.

3) The greater density and poorer amenities and privacy at the workplace, the more likely the organisational culture is perceived as being external focused and having stronger *Market* characteristics.

Some of these findings are in consistent with the literature. For example, Van der Voordt et al. (2003) also proposed the connection between the deemphasis of workspace amenities and *Market* culture. But there are also conflicts. According to Riratanaphong and Van der Voordt (2011), *Hierarchy* culture stresses structural clearness and status symbols. However, case studies descripted in this chapter tended to show that offices that were more open with fewer cellular rooms and more egalitarian allocation of windows views were perceived to have stronger hierarchy culture, for instance, the offices of AA Company and TT Company. It seems that Chinese employees have their own cognitive patterns to decipher spatial meaning.

Not only spatial characteristics affect the perception of organisational culture, so do individuals' work-related values. According to Table 6.32,

1) Employees with stronger *Power Distance* tended to rate their organisational culture as stronger in *Adhocracy, Market* and *Hierarch;*

2) Employees having stronger UAI tended to rate their organisational culture as having more *Market* characteristics. It might be because that employees who are less tolerate of uncertainty are more sensitive to external changes and thereby see the behaviours of their organisation as more external-focused.

3) Employees having stronger *Masculinity* tended to rate all characteristics of their organisational cultures as stronger;

4) Employees with stronger *Individualism* tended to rate their organisational culture as stronger in *Clan, Adhocracy* and *Hierarchy*;

5) Employees with stronger *Long-term Orientation* culture tended to rate their organisational culture as stronger in *Market and Adhocracy*.

Based on current literature, most of these correlations are difficult to explain as the relationship between Hofstede's cultural dimensions and Cameron and Quinn' s organisational culture characteristics has been scarcely addressed. Nevertheless, the research finding suggests that employees with different value orientations perceive their organisational culture differently. Thus, knowing employees' values is important for designing workspace to deliver organisational culture properly.

Yet, above findings were not enough to explain the difference and similarity of perceived organisational culture in the case study. In *Study 2,* despite the differences in workspace characteristics and employees' values, seven out of the eight offices were perceived to have a dominant organisational culture characteristic of Clan. This finding is consistent with the argument of According to Hofstede (2008). which suggested that Chinese organisations usually adopt a family-like (*Clan*) organisational atmosphere. The question is, while there are differences in workspace and employees' values, what causes the similarity?

Just a small tip of the iceberg was seen. In Chapter 2, Section 2.5.2 has listed a number of spatial cues that are found to be associated with the perception of organisational culture in the literature. Whether those spatial cues are meaningful in Chinese context remains further examination. There is still long way to fully understand the hidden story.

Nevertheless, keeping cultural sensitiveness to the spatial meaning system in China should be the daily practice of workspace researcher in China. In fact, some researchers seem have misunderstand how Chinese people manipulate spatial cues to create social meanings

at workplaces. For instance, the typology of Chinese workspace posited by Steelcase (2012) (Figure 2.12) is quite different from the layouts of case studies in this research and the spatial patterns of ancient Chinese administrative, thus its validity is doubtable.

In general, the patterns that Chinese office workers use to interpret spatial meanings are not fully understood according to this research. Because of this, whether Chinese employees have adopted a *High-context* way to understand the social meanings of their workspaces cannot be confirmed.

Due to the limitation case studies numbers (only four office from manufacturing and four from graphic design, and only four from Shanghai and four from Guangzhou), it is not possible to compute the correlations between workspace factors and perceived organisational culture and the correlations between regional or industrial cultures and perceived organisational culture. Thereby, the regional and industrial effects on the perceived organisational culture were not addressed in this research.

7.3.3 Workspace evaluation

7.3.3.1 The national trend and value links

Evaluation is the process that space users evaluate their workspace based on collected information and determine whether the workspace is satisfactory and forgivable.

Study 1 found that, in most workspace items respondents held a neutral attitude. Satisfactory factors included branding of organisational culture, space amount of workstations and ease of supervision only. The satisfaction with space amount of workstations might be because Chinese employees have lower expected standards for it. Steelcase (2010) reported that Chinese employees are highly tolerant of dense workspace. At the same time, the satisfaction with ease of supervision might be because of the popularity of open-plan office in China. In the study, 73.5% of respondents were working in open-plan offices. However, whether the other features are reliable national characteristics or just is a contingency caused by the selection of samples remains future examination.

The *forgiveness* index of all samples was 1.08, showing that the respondents were easy to tolerate the deficiencies of workspace. According to regression analysis, *forgiveness* index negatively correlated with the satisfaction with most workspace components except *Workstation quality (see Table 5.1).* Respondents in workspaces with better conditions and better property services tend to be more demanding for their workspace. It is possible that

the improvement of common space design and services in the workplace would raise employees' expectation for their organisation to look after them and as a result, employees become less forgiving. But in general, the variance of *forgiveness* explained by the six workspace components was small, and regression model with 25 detailed workspace variables was insignificant. This implies that workspace condition might not the main factor determining *forgiveness.*

In fact, Table 5.1 and Table 5.2 further show that nearly half of the variance in overall workspace satisfaction was not explained by workspace conditions. Among all the all regression models analysed in *Study 1* and *Study 2*, the maximum percentage of variance in overall workspace satisfaction explained by workspace factors was 67% (see Table 5.10). In some case studies, e.g. AASH, TTSH and FFGZ, the variance in overall workspace satisfaction was not even explained by workspace factors.

The low percentage of explained variance in overall workspace satisfaction suggests the importance of other organisational factors on employees' workspace evaluation. A holistic approach (Masuda and Nisbett, 2001) seems adopted by Chinese office workers.

The correlations between the national culture and overall workspace satisfaction or *forgiveness* were also tested in the *Study 1* (Table 5.6). Some trends suggested by the results can be discussed:

1) It was found that *Power distance* had negative correlations with the satisfaction with sense of belonging, IEQ, furniture comfort, space amount, view out of window and expression of status in the study. Differentiation of furniture, space size and window view have been widely recognised as status symbols in the literature. Therefore, it is not a surprise that respondents with stronger PDI had a stronger emphasis on them and rated them with lower satisfaction in the study. It is also possible that responders with stronger PDI preferred to differentiate people according to the hierarchies and thus had a weaker sense of belonging.

2) *Individualism* had negative correlations with the satisfaction with branding of organisational culture, amenities, space amount, privacy, view out of window and expression of status. This finding is consistent with the literature that individuals with stronger individualistic culture pay more attention to issues such as self-expression, privacy, personal territory and wellbeing. In the study, *Individualism* had positive correlations with some social aspects of workspace including aesthetics of interior design, green plants, breakout space, cleanliness, waiting time for lifts, ease of communication, ease of supervision, library and personalisation possibility.

3) *Masculinity* had negative correlations with sense of belonging, library, space amount and privacy. The finding partially supports the argument of Plijter et al. (2014), which suggested that, masculine culture is connected with status symbols and spatial privileges demonstrating one's material success. At the same time, people with masculine culture are supported be assertive and tough (Hofstede, 2008), and thus difficult to be socialised to have sense of belonging in an organisation. However, *Masculinity* had positive correlations with aesthetics of interior design, breakout space, green plants, waiting time for lifts and ease of communication and supervision. This is consistent with the argument that feminine culture is connected with cosiness (Plijter et al., 2014). It appeared that people in cultures that are less masculine may pay more attention to the social and sensory combability of workspaces.

4) *Long-term Orientation* and *Uncertainty Avoidance* appeared to have positive correlations with nearly all workspace variables. In the regression analysis, the two cultural dimensions also had significant and positive effects on overall workspace satisfaction while the influences of other dimensions were insignificant. It seems that due to the concern for job security and career development., employees with stronger *Long-term Orientation* or *Uncertainty Avoidance* values would lower their expectation for workspace and be more satisfied with their workspaces.

It is also noted that, apart from national culture, workspace satisfaction is also influenced by demographic factors such as age, gender and region. Table 7.2 summarised the connections between different workspace components and demographic characteristics based on the result of hierarchical regression model in *Study 1* (Table 5.5).

Table 7.2 Connections between cultural, demographic and workspace factors and workspace satisfaction: based on the hierarchy regression analysis in Study 1

Workspace components	Cultural dimensions					Related demographic characteristics
	PDI	UAI	MAS	IDV	LTO	
Social environment		+		+	+	Age, region
Workstation quality	-	+		-	+	Age, office type
Property management				+	+	Gender
Amenities		+		-		
Location		+				Region
Functional comfort	+			+		Industry
Overall workspace satisfaction		+			+	Region

Note: - significant negative correlation, + significant positive correlation

However, in general the correlations between workspace satisfaction and cultural dimensions shown in Table 5.6 were weak in the study. Hierarchical regression results also show a similar trend (Table 5.4 & Table 5.5). It appeared that the variance in overall workspace satisfaction explained by national culture values and individuals' demographic characteristics was minor. And the variance in forgiveness even was not explained by them. This suggest that Chinese office workers' workspace evaluation process is mainly affected by organisational context. The influence of pre-organisational context is less important. If fact, Study 2 revealed that organisational culture and workspaces have a much stronger influence on employees' workspace satisfaction than employees' personal values shaped by their national, regional and industrial cultures have.

7.3.3.2 Regional and industrial effects

Despite correlations were week, Table 7.2 shows that regional culture and industrial culture in fact may have different influence on office workers' workspace evaluation. Regional difference appeared associated with satisfaction with *Social environment, Location* and overall workspace satisfaction, and industrial difference appeared associated with satisfaction with *Function comfort.* According to Hofstede (2008), regional culture consists of more social values. Thus, it is reasonable that regional difference was significantly associated with the social facts of workspace. By contrast, Industrial culture consists of half values and half practices. Thereby industrial difference appeared significantly associated with the functional facts of workspace.

Based on the cross-regional comparison in *Study 1*, it could be also found that when the cultural difference between regions was smaller, the difference in workspace satisfaction between was narrower (Table 5.8). For example, fewer differences in the workspace satisfaction between Shanghai and Guangzhou were found in the study than between Shanghai and the group of other cities or between Guangzhou and the group of other cities. The largest regional differences were found in variables of *Social environment.* This is in consistent with the findings of hierarchical regression analysis that regional effects mainly draw on the social facts of workspace.

Study 1 also showed that more differences in workspace satisfaction were found between industries than between regions (Table 5.14, in comparison with Table 5.8). Workspaces of the manufacturing sector yielded highest satisfaction on most surveyed workspace items. This might be because of the difference in physical working environment between industries. The relatively lower *Uncertainty Avoidance* of the industry may also account for it according to the discussion in section 7.3.3.1.

However, *Study 2* did not replicate the regional differences. Significant regional differences in workspace satisfaction were only found in four variables, which were transportation, local amenities, library, and space amount (Table 6.28). None of them are in the workspace component of *Social environment.* The inconsistence might be caused by the selection of case studies.

But the industrial difference in workspace satisfaction was large in *Study 2*. Significant differences were found in 21 out of the 25 workspace variables as well as overall workspace satisfaction (Table 6.24). In general, respondents in the manufacturing sector showed higher satisfaction then employees in the graphic design industry. This may be because of the higher standard of workspace design of manufacturing offices. They tend to have lower density, more branding interior design, and more amenities in the workspaces. Only in the satisfaction with sense of belonging, library, furniture comfort and view out of windows, the industrial difference was not significant.

based on the above findings, it can be posited that industrial culture may have stronger influence on workspace satisfaction than regional culture due to the fact that offices usually are designed based on business requirements, although regional culture may affects individuals' values and subsequently condition their workspace satisfaction, the effect of values on workspace satisfaction are much weaker than the effect of physical space.

7.3.3.3 Organisational effects

As per argument in section 7.3.3.1, the weak correlations between values and workspace satisfaction suggests the important influence of organisational factors e.g. culture and workspace design on workspace satisfaction. *Study 2* further envisaged the issue and the findings are supportive to the proposition. It found that the differences in physical workspace between case studies account for the differences in employees' workplace satisfaction to a large extent. For example, the suburban location of JJGZ office had significantly lowered its employees' satisfaction with transportations and local amenities.

But this is not all the story. Curiously, there were some contradictory findings *Study 2*. For example, in the FFGZ office, while its physical setting is simpler than that of the FFSH office, its employees in contrast showed higher satisfaction with most workspace aspects. Another example is the JJGZ office. The lower satisfaction in location factors did not drag down its employees' overall workspace satisfaction in comparison to that of the JJSH office. It appears that the differences in workspace satisfaction and the differences in physical workspace design are not necessary to be always in sync, contextual factors such as culture

and emotional ties may have also influenced employees' attitude towards their workspace.

Following the logic, *Study 2* examined the correlations between organisational culture and workspace satisfaction. The results show that the correlations between perceived organisational culture and workspace satisfaction were extensive (see Table 6.35). It appears that how employees see their organisations has an influence on their workspace satisfaction. For example,

1) Employees who have a stronger sense that their organisational culture is strong in *Clan* and *Adhocracy*, tended to have higher workspace satisfaction with most workspace factors. This might be because in an organisation culture that emphasising flexibility, employees would correspondently pay less attention to workspace and thereby are easier to be satisfied.

2) Employees who have a stronger sense that their organisational culture is strong in *Market,* tended to be more satisfied with sense of belonging, local amenities, fitness, furniture comfort, view out of window, personalisation of desks and status symbols. It is possible that in an external-focused organisation culture, employees pay less attention to the comfortability and hierarchy of internal work environment, and thereby they are easier to be satisfied in regard to these workspace factors.

These two findings suggest that organisational culture may shift employees' attention at the workplace and thereby affects workspace satisfaction. This is supportive to the author's argument about employees' psychological adaption at the workplace.

Another found connection between perceived organisational culture and workspace satisfaction at the individual level is:

3) Employees who have a stronger sense that their organisation has a *Hierarchy* culture appeared more satisfied with building location reflecting organisational power, building appearance, branding of organisational culture, local amenities, cleanliness, waiting time for lifts, IEQ and view out of window, and have higher overall workspace satisfaction.

However, in this situation, it is hard to say employees' attention was shifted as hierarchy culture tend to stress the importance of power symbols and internal stability. It is more likely that organisations with such culture usually do better in the branding of organisational identity and the efficiency and health of workspace design and thus the culture are perceived as *Hierarchy*. This trend could be seen in the case studies of AAGZ office and AASH office. They are both located in high end office buildings in central location while their

organisational cultures were both rate as having strong *Hierarchy*.

While significant connections between organisational culture and workspace satisfaction are extensive, compared to the findings in Table 5.6 in *Study 1*, the connections between individuals' cultural values and workspace satisfaction presented in Table 6.35 were lessened. Particularly, all connections between UAI and workspace satisfaction became insignificant, and only five significant correlations between LTO and workspace satisfaction all were found. It appears that organisational culture had moderated the effect of national, regional and industrial cultures on workspace satisfaction, as individuals' cultural values are the amalgamate of national, regional and industrial cultures he / she learnt (Karahanna et al., 2005).

But how did the moderation effects happen? Above discourse suggests that organisational culture might shift employees' attention and change their initial workspace preferences that are associated with personal values. As a result, a disparity between the real psychological reaction and cultural values at the workplace emerge. This might account for it. A similar finding can be referred to Hofstede's (2008) argument about disparity between the workplace practice and employees' values in the case study of IBM.

One might argue that the person-organisation fit may also draw certain effect. According to the findings shown in Table 6.33, different organisational cultures will attract employees with different values. This would narrow the values differences between employees in the same organisations thus the variance in workspace satisfaction accounted by value difference become insignificant. But the question is, in the Table 6.33, UAI in fact had not correlation with any organisational culture dimension. And if employee' values are homogeneous in the same organisational culture, then the perceived organisational culture should be similar too, and as such, the correlations between organisational culture and workspace satisfaction should be insignificant. Yet, the empirical findings in table 6.35 were contradictory. Therefore, the person-organisation fit theory is not applicable to explain the effect of organisation on workspace satisfaction.

Another important finding in *Study 2* is, at the between-office level, the number of correlations between culture and workspace satisfaction was fewer than that at the individual level, but the correlation coefficients were stronger. In particular, UAI has the most correlations with workspace satisfaction and the correlations were negative (Table 6.36). Offices with employees having stronger *Uncertainty Avoidance*, appeared to have lower employee satisfaction with waiting time for lifts, cleanliness, toilet, ease for communication, catering, IEQ and furniture. Offices with employees having stronger *Uncertainty Avoidance*,

appeared to have lower employee satisfaction with waiting time for lifts, cleanliness, toilet, ease for communication, catering, IEQ and furniture comfort. It is difficult to explain the connections based on theoretical interpretation.

However, when looking back to the findings of case studies, it can be found that employees in TTSH office has the strongest UAI while AASH has the weakest, but AASH office was located in the highest end buildings while the office building of TTSH were much smaller and poorer in equipping and services. Clearly, the differences in workspace satisfaction on above mentioned workspace factors were caused by the differences in workspace condition rather than value differences. As such, it seems that workspace location and condition had affected employees' UAI. But through what mechanism? Yet, no literature has posited their connections. The answer remains unclear. Or, it is possible that in small companies like TT, uncertainty is hatred, and in huge companies like AA, employees wish to break existing rules to be more flexibility at work. And the difference in workspace condition is just a contingency caused by the difference in organisations' financial power.

Additionally, *Masculinity* and *Hierarchy* showed strong and positive correlation with the satisfaction with view out of windows; *Long-term Orientation* was negatively associated with the satisfaction with furniture comfort; *Adhocracy* was negatively associated with the satisfaction with local amenities.

The correlations between *Masculinity*, *Hierarchy* and the satisfaction with view out of windows is consist with the finding about the influence of physical workspace characteristic on the perception of organisational culture. According to the elaboration in Section 6.9.1, in office in which employees have equal access to windows are more likely to be perceived as having *Hierarchy* culture, while *Hierarchy* is attractive to employees with *Masculine* values.

According to Section 6.9.1, in office where employees generally show weaker LTO, the organisation tends to be more *Clan* like and focuses more on the human development and well-being (Cameron and Quinn, 2006). As such, it is more likely for it to provide employees with more comfortable furniture. Workspaces of *Adhocracy* organisations usually are temporary (Cameron and Quinn, 2006) and this may result in that amenities are less considered in the site location. Therefore, it is not a surprise that in office with stronger *Adhocracy* employees' satisfaction with local amenities was lower.

Finally, Study 2 found that, organisational culture characteristics including *Clan, Adhocracy* and *Hierarchy* were significantly associated with *forgiveness*. In offices with a stronger *Clan, Adhocracy* or *Hierarchy* culture, employees appeared to have a higher *forgiveness* score, which means that they were more tolerate for the shortcoming of workspace. This finding is

consistent with the argument of Leaman (1995), which suggested that organisational context may have important influence on *forgiveness*.

In general, the findings from the studies suggest that in the Chinese context, organisational effects on workspace evaluation are significant, and appear to be more important than those of national, regional and industrial culture. Firstly, organisational culture was seen to reduce the correlations between individuals' values and workspace satisfaction; Secondly, many differences in workspace satisfaction could be explained by the differences in spatial conditions. Thirdly, according to the hierarchical regional analysis in *Study 1,* generally only less than 10% of variance of workspace satisfaction were explained by individuals' cultural values. Finally, *forgiveness* appears to have stronger correlations with organisational culture then with employees' cultural values.

Three questions remain confusing to the author. Firstly, why there was no significant correlation with UAI at the individual level, and why the correlations become significant again in the analysis at the between-office level?

Secondly, why the correlations between culture and workspace satisfaction were so strong at the between-office level?

Thirdly, it is also noted that, in all regression models analysed in Study 1 and Study 2, the percentage of variance in overall workspace satisfaction explained by workspace factors is not high, 67% at maximum (see Table 5.10). In some case studies, e.g. AASH, TTSH and FFGZ, the variance in overall workspace satisfaction was not even explained by workspace factors. It appears that other organisational factors out of workspace also draw a significant in the perception of workspace.

7.4 Cultural influences on Chinese employees' accommodative behaviours

According to the findings of study 2, the workspace expectations of employees in eight offices varied from each other. And it is also noted that good physical conditions of workspace do not necessarily lead to high overall workspace satisfaction and poor physical conditions of workspace do not necessarily lead to low overall workspace satisfaction in Chinese workplace. For instance, the difference in overall workspace satisfaction between JJSH office and JJGZ office was insignificant despite there were huge differences in their location and workspace configuration. And in some case studies, for example, AASH, TTSH and FFGZ, overall workspace satisfaction was not explained by the satisfaction with

detailed workspace variables.

This section discussed the reasons of these between-organisational differences are addressed. Holding that psychologically adaptation are the main causes of differences in employees' expectations, the author explored the driven forces of employees' employees' accommodative behaviours and the accommodative preferences of Chinese office workers based on the empirical findings of *Study 1 & Study 2*.

In this research, accommodative behaviours refer to how employees personalise their workspace and psychologically adapt their expectations for workspace so as to create person-environment fit. Psychological adaptation is stimulated by the external environment. In this mode, when the environment does not match users' preferences, users tend to change themselves psychologically to align their expectations to the environment. Thus, the correlations between expectations and environmental factors are significant if psychological adaptation happens. Personalise is stimulated by personal values. In this mode, when the environment does not match users' preferences, users tend to make changes to the environment. Thus, correlations between expectations and personal values are significant in personalisation behaviours. Psychological adaptation and personalisation are complementary and whether one is preferred over the other reflect the workspace accommodative preferences in a culture.

7.4.1 Cultural influences on psychological accommodation

According to *Study 2,* some physical workspace characteristics appeared to have strong correlations with workspace expectations (details see Section 6.9.3). It was found that the improvement of some workspace factors might encourage employees to have higher expectation for related workspace issues while the down turn of them might correspondingly lower employees' expectations for related workspace issues. For instance, good breakout space tended to raise employees' expectation for communication convenience. However, the improvement of some workspace factors might depress some other needs while the lack of them might raise employees' concerns or expectations for related workspace issues or lead them to look for compensations accordingly. For instance, in office consisting larger proportion of space allocated to enclosed rooms, employee tend to have greater concern for commemoration convenience. In Chapter 6, the author has defined these two different psychological accommodation patterns as positive adaptation and negative adaptation respectively. They can be likened to the experience of hotels. When staying in a five-star hotel, customers might have stronger expectations for high quality service; and when staying in a three-star hotel, customers might accordingly lower their expectations for some

services while being attracted by other features such as lower price.

Study 2 also found a few significant and strong correlations between organisational cultural dimensions and workspace expectations. PDI was found to be positively associated with the importance of expression of status symbols, LTO was positively associated with the importance of building location reflecting organisational power, UAI was positively associated with the importance of fitness facilities, and *Adhocracy* was positively associated with the importance of green plants and view out of windows. The former two correlations are supportive to the literature (e.g. Van der Voordt et al., 2003; Hofstede, 2008), but the latter two are suspicious. In Section 6.9.2 , based on the correlaitons between perceived organisational culture and workspace satisfaction, it is also suggested that *Clan* and *Adhocracy* cultures may reduce employees' attention paid to the workspace; *Market* culture, may deemphasise sense of belonging, local amenities, fitness facilities, furniture comfort, view out of window, personalisation of desks and status symbols.

Additionally, the findings of *Study 2* to some extent are contradictory to the findings in *Study 1*. For instance, while sense of belonging was found to have significant correlation with overall workspace satisfaction irrespective of regional and industrial differences in *Study 1*, only in three offices (FFGZ, JJFZ, JJSH) sense of belonging was correlated with overall workspace satisfaction (see Table 6.26). Further, the common workspace factors that having significant correlation with overall workspace satisfaction in offices in manufacturing generated in *Study 2* are quite different from the industrial preferences yield in *Study 1.*

These empirical findings form solid evidence for the psychological adaptation of employees in Chinese workspaces. It seems that the psychological accommodative behaviours are significantly associated with the organisational context. Based on the findings of *Study 2*, some trends can be highlighted

Firstly, the findings in Section 6.9.3 shows that the number of positive adaptations was more than that of negative adaptations (nine versus four). It seems that the respondents were basically "compliant" and less tried to ask for compensations. This fits the characteristic of *Collectivist* culture in which conformity is valued (Hofstede, 2008).

Secondly, based on Table 6.37 & Table 6.38, it could be found that comparing to the number of correlations between physical workspace characteristics and workspace expectations, the number of correlations between cultures and workspace expectations was fewer. This suggest that the psychological adaptation of office workers in the case studies were mainly driven by physical space conditions rather than by cultures.

Thirdly, case studies in eight offices in *Study 2* illustrated that employees' workspace expectations in different offices varied from each other. Organisational context tends to diversify workspace expectations between offices in China, Employees in difference offices may adapt their expectations based on their perceived organisational culture and environment and give up part of their initial preferences aligning their national, regional or industrial cultures. Besides, in *Study 1*, the correlations between personalisation possibility and overall workspace satisfaction was insignificant irrespective of regional and industrial differences (see Table 5.2, Table 5.10 and Table 5.16), and in *Study 2*, only in three case studies (AAGZ, JJSH and TTGZ) personalisation possibility showed significant correlation overall workspace satisfaction. The desire to change or personalise workspace in Chinese workplaces appears weak. Therefore, a preference for creating person-environment fit through *secondary control* at Chinese workplaces could be argued.

Accommodative behaviours and the workspace accommodative preference found in this research may explain the disparities between culture values and workspace practices in China. For example, in Chinese tradition, walls that protecting privacy were valued, but this does not reduce the popularity of open-plan offices in current Chinese workplace. It might further explain why the importance of personal workstation qualities rise. It is likely that since in open-plan offices social boundary is ambiguous and control over the general environment is impossible, employees tend to shift their attention to their personal workstation where is controllable and anchor their emotional tie to it to create a sense of belonging as an adaptive strategy. It also explains why ancient Chinese administrative buildings worked well changed little without big changes in design patterns over two-thousand years while the society have changed dramatically.

The preference for *secondary control* and positive adaptation may differentiate Chinese workspace behaviours from Western workspace behaviours that were found in UK, EU or US. Sundstrom et al. (1996) see self-adaptation as a stress therefore an option secondary to physically changing the workspace to fit people. Steelcase (2012) also found that German employees have a high standard for workspace and expect nothing less. Clearly, these are not the case in China.

But the fact that Chinese employees are adaptive does not necessarily mean that the influence of national, regional and industrial cultures are not important in Chinese workspace design. There are two reasons.

Firstly, certain influences of these pre-organisational context were found to be persistent in some case studies. For example, in regression analysis, *Social environment* and

Workspace quality showed greater importance than others in five offices，namely JJGZ, JJSH, TTGZ，FFGZ and FFFSH. It appears that while the detailed expectations varied across offices, they generally still followed the national trend discovered in *Study 1*, reflecting the influence of national culture. In the cross-region and cross-industry comparison in *Study 2,* a number of within-region and within-industry similarities in workspace expectations were found. For example, Table 6.29 shows that toilet, furniture comfort, privacy, aesthetics of interior design, space amount of personal workstations and expression of status were commonly emphasised by employees in offices in Guangzhou. The last three factors also appeared in the regional preferences in Guangzhou generated in *Study 1* (Table 5.10). Aesthetics of interior design, branding of organisational culture, breakout space and waiting time for lifts were commonly emphasised by employees from the manufacturing sector *(*Table 6.26). Apparently, not all initial preferences were depressed or changed. There may be regional and industrial differences for *secondary control*.

Secondly, according to the literature, the accommodative preference for *secondary control* may be rooted in their traditional environmental belief that emphasises keeping harmony with the environment (Leung, 2010). This belief has resulted in the little change in ancient Chinese administrative buildings along the history. In other words, while people are adaptive, the architecture traditions are persistent. In fact, the spatial patterns of ancient Chinese administrative buildings could be still seen in some case studies in the research (Table 3.8). It seems that while the space appreance changed significantly, the backstage metal schame about workpace and perception patterns are difficult to change.

As such, what Chinese office workers like to change and what they would not comprimise, and how they percive the space as the basis to develop accommotave intension seem still conditioned by their national, regional and industrial culture. The influence of organisaitonal culture on Chinese workspace are more likely to happen at the “tactical” level as the reaction to collected sptial information which are coloured by different levels of culture, each draws significant influence on the collecting, screening and process of spatial information. A danger in workspace design and management thus is unestimating and misunderstanding the influence pre-organisaitonal context on workspace accommodative behaviours and having over simplified or wrong strategies to manage spatial changes.

In general, the research findings reveal that, employees’ workspace expectations can be renegotiated and reconstructed in the workplace despite the influence of national, regional and industrial culture.

7.4.2 Cultural influences on physical accommodation

Physical accommodation pertains to the personalisation of workstations and the change of workspace made by employees. Based on cross-regional and cross-industrial comparisons, *Study 2* revealed that the preferences for personalisation might vary across industries while regional difference was small. Employees in manufacturing tended to personalise their workstations with photos, artworks and trinkets, and in general displayed more personal items on their desks than employees in graphic design do. The latter tended to personalise workstation with green plants, gadgets and personal care-items.

However, Study 2 did not show significant cultural differences between the two industries. Statistic test results did not show significant correlation between personalisation frequency and employees' values (Table 6.39), neither the significant correlation between the importance of personalisation possibility and employees' values (Table 3.37). Therefore, it is less likely the differences in workspace personalisation preference shown in *Study 2* were caused by the values between industries. It is possible that they were affected by the difference in industrial practices. According to the interview, respondents from graphic design firms tended to have a longer time working in front of PC screens and tend to personalise workstation with green plants for visual health. Their IT mind may also account for the preference of personalising workspace with gadgets. In addition, the smaller size of workstation in graphic design companies may also account for the fewer displays on desks.

The industrial differences in personalisation preferences seem less likely to be altered by organisational culture, as no significant correlation was found between organisational culture and personalisation frequently.

But there remain some solved disunities in the research findings. *Study 1* found a weak but significant correlation between *Individualism* and the satisfaction with personalisation possibility. It appears that employees with more individualistic culture had a stronger tendency to think that they are empowered to personalise their workstations. A similar finding is also shown in the paper of Brunia and Hartjes-Gosselink (2009) which shows that in a case study in the Netherlands where the culture is highly individualistic managers and employees still personalised and claimed workplace happen quite office despite that they were prohibited in the non-territorial office. Yet, *Study 2* did not replicate this cultural connection, neither see higher importance of personalisation possibility in office with stronger IDV.

Similarly, organisational culture also appeared associated with the satisfaction with

workspace personalisation possibility in *Study 2*. Employees who perceived their organisational culture as stronger in *Clan, Adhocracy* and *Market* tended to be more satisfied with it (see Table 6.35). This might be in an environment that is perceived with less rigid control, employees tend to think they have greater possibility to personalise workspace. But again, no corresponding increase in the importance of personalisation possibility was found paralleling the strengthening of organisational culture.

In seems that a greater personalisation possibility did not necessarily lead to a greater importance of personalisation possibility in employees' expectation. This position also explained why workspace chrematistics has no significant correlation with the importance of personalisation possibility despite the fact there were more displays on desks in the manufacturing sector in which the size of workstations in generally was bigger.

In fact, in *Study 1,* personalisation possibility did not show significant correlation with overall workspace satisfaction, regardless regional or industrial differences. And in *Study 2,* only in three case studies out of the eight showed significant correlations between personalisation possibility and overall workspace satisfaction. This suggests the lower criticality of workspace personalisation in Chinese employee's accommodative behaviours and from another side further support the author's argument about the preferences for secondary control in Chinese workspace.

Finally, it is also noted that the study did not find employees use explicit words or calligraphic works to personalise their desks. The historical preferences for using text to decorate space seems not succeed in modern Chinese workspace design.

In generally, the industrial effect on personalisation behaviours appeared greater than then regional and organisational effects in Chinese workspace in this research. This does not exclude the possibility that larger regional differences may be found when comparing other regional cultures or other organisations. Because of this, more empirical studied is needed to verify the relative importance of regional, industrial and organisational cultures. Further, personalisation possibility appears to be a "good to have" factor in Chinese workplace as the greater availability of it did not significantly increase it is importance.

7.5 Theorising national, regional, industrial and organisational effects

The two studies in this research empirically revealed the different influences of national, regional, industrial and organisational cultures on Chinese workspace. based on above discussion, some general trend can be summaries to inform theoretical development.

Firstly, it appears that the influence of national culture on employees' initial workspace preferences is salient and hard to change by regional, national and organisational effects. For instance, the important contribution of *Social environment, Workspace quality* to overall workspace satiation were found common to most case studies. Regional and industrial effects on workspace satisfaction are important too but case-dependent. Not all regions or industries show strong regional or industrial tend (see Table 6.26 and Table 6.29).

Secondly, employees' workspace perception and interpretation patterns seem to embed in their pre-organisational cultural experience as similar spatial patterns were found across six out of eight case studies. Some workspace characteristics were found to associated with perceived organisational culture. In addition, employees' cultural values also coloured the way they see the organisational culture with weak correlation coefficients. In turn, the perceived organisational culture appeared to affect employees' person-environment fit through screening their personal values.

Thirdly, in regard to workspace satisfaction, both studies showed that its connection with cultural values appeared weak due to the small proportion of variance in workspace satisfaction they explained (Max $\Delta R^2 = 0.074$, see Table 5.4). Workspace characteristics appeared to have a much stronger effect on workspace satisfaction. But this does not necessarily mean that regional and industrial effects are not important. In fact, according to *Study 1*, regional difference mainly affects satisfaction with *Social environmen*t, *Location* and overall workspace satisfaction; Industrial difference mainly affects satisfaction with *Functional comfort*. This finding is consistent with the theoretical proposition of Karahanna et al. (2005) which suggests that national or regional culture is primarily composed of social values and industrial culture is composed of values and practices relating to task requirements. In addition, organisational culture was also found to draw a slight effect on workspace satisfaction according to the weak correlations between them.

Forgiveness was not explained by national, regional and industrial cultures and workspace conditions (see Table 5.2 and Table 5.5). However, the connections between organisational culture and forgiveness are strong. This suggest the importance of organisational culture in affecting employees' tolerance of workspace shortcomings.

Fourthly, employees' psychological adaptation is strongly associated with workspace according to *Study 2* while the cultural influence on it was weak. This suggest the importance of environment stimulation on employees' psychological adaptation in cultures that embrace *secondary control*. Despite this, the regional ad industrial differences in the preferences for *secondary control* can still be seen.

Finally, the industrial effect on employees' workspace personalisation appeared stronger than regional and organisational effects.

The different effects of cultural at different levels were summarised in Table 7.3.

Table 7.3 effects of difference levels of culture and workspace on employees' workspace experience

	National culture	Regional culture	Industrial culture	Organisational culture	Workspace
Individual values	++	+	+	*	
Initial preference	++	+	+		
Workspace design	+		++	++	
Workspace precipitation	++				++
Workspace interpretation	++	=	=		++
Workspace satisfaction	+	+	+	+	++
Workspace Forgiveness				++	
Psychological adaptation	+	+	+	+	++
Workspace personalisation	=	=	+	=	=

Note：++ Strong connection; + weak connection;
* fileting effect; = remain further examination

These findings can be projected to Hofstede's (1991) model. It shows that while national or regional culture, which mainly consists of values, primarily influence office workers' preferences and perception patterns, organisational factors including workspace and organisational culture, in contrast, affect office workers' accommodative behaviours.

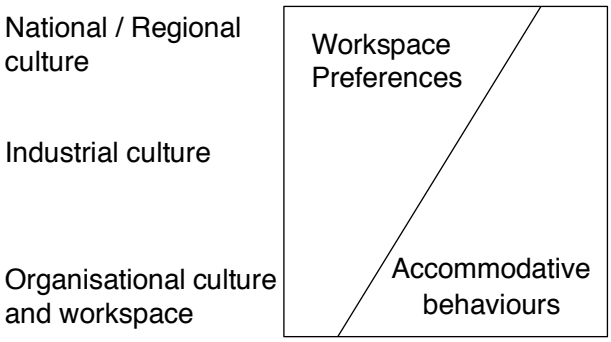


Figure 7.1 The influence of different levels of culture on workspace accommodation
(Source: adapted from Hofstede et. al., 1991: p312)

8 Conclusion and limitation of the research

8.1 Conclusions of the research

This research has particularly addressed the cultural influence on employees' workspace accommodation process in China. Based on data from questionnaire surveys and onsite workspace characteristic coding, it examined how national, regional, industrial and organisational cultures affect Chinese employees' workspace preferences, workspace cognition process and workspace accommodative behaviours.

The research abandons the "if-then" logic (Vischer, 2008) by seeing the workspace issue as a dynamic process involving both cultural conditioning and human adaptation. An important finding is that, there do exist a national trend of workspace preferences stressing the importance of *Social environment* and Workstation *quality.* The national effect is highly strong that it can be seen in nearly all regions, industries and most organisations in the datasets within this research. At the same time, the influence of the national culture and tradition on workspace perception and interpretation patterns was found too.

But this does not necessarily mean that regional, industrial and organisational effect are not important. In fact, many differences in organisational culture and workspace design, employees' values, workspace preferences, satisfaction, expectations and personalisation behaviours were found between regions, industries and organisations. Particularly, industrial and organisational cultures appeared to have a strong influence on workspace design which has a further strong influence on workspace satisfaction, while the direct connection between these different levels of culture and workspace satisfaction were weak. Additionally, industrial culture seemed to have an important effect on employees' workspace personalisation. It appears that, different levels of culture have different roles in the design and management of Chinese workspace and have different effects on employees' workspace experience. This form the second important finding of this research.

A third important finding of this research is that, the holistic approach is adopted by Chinese employees in the evaluation of workspace. It was found that satisfaction with surveyed workspace variables explained averagely only 50% of the variance in overall workspace satisfaction. Apparently, other contextual factors in organisations have significant influenced employees' overall workspace satisfaction. Further, workspace forgiveness appeared to have a strong correlation with organisational culture but not connected to workspace satisfaction and employees' personal values.

The final but most important finding of this research is that, Chinese employees are adaptive at the workplace due to their *Collectivist* cultural tradition. It was found that employees' workspace expectation varied across offices and workspace characteristics had more correlations with workspace expectations than culture. The psychological behaviours clearly are driven by extrinsic environments rather than intrinsic values. At the same time, workspace personalisation was less emphasised according to the case studies. Chinese employees tend to adopt an approach of *secondary control* to create person-environment fit at the workplace. Comparing to emphasising matching the workspace to their own preferences, they tend to prefer to change themselves psychologically to cope with the given workspace. Two types of psychological accommodative behaviours were identified and named as "positive adaptation versus negative adaptation". And in the case studies, more positive adaptations were seen than negative adaptations.

But the preference for self-adaptation does not mean that the national trend as well as regional and industrial effects can be ignored. In fact, the research also found certain similarities in workspace expectation within the regional group or within the industrial group. And the workspace expectation of each office all mostly fall into components of Social environment and Workstation quality.

The correlations between cultural variables and workspace variable, and the mechanism of cultural congruence between employees and the organisation were also addressed in this research.

8.2 Contribution of the research

The findings of this research may contribute to global workplace practice in several aspects in regard to the workspace design in China and the global-local tension.

The first is that it provides new knowledge insight about the workspace preferences of Chinese employees. In particular, the emphasis on workstation quality was unexpected. The finding breaks out of the old stereotypes that Chinese are strongly focused on the collective space and care little about personal space.

Secondly, findings about the Chinese employees' workspace cognitive patterns and adaptive preferences may inform designers and facility managers to better predict the potential influence of their design works and workspace strategy on employees so as to avoid design and management risk.

Thirdly, the two psychological accommodative patterns discoveries may be particularly valuable for the change management of workspace in China. Based on the correlation between space characteristics and the importance of workspace variables, change managers may able to predict space users' reaction to a spatial change and accordingly develop following actions. It also enables managers to purposely manage employees' workspace expectations.

Fourthly, this research examined the different effects of national, regional, industrial and organisational cultures as well as their connections. Based on the correlations between organisational culture characteristics and employees' values, and the correlations between workspace characteristics and perceived organisational culture, it is possible to "design" organisational culture through careful manipulating of spatial elements to attract targeted employees.

Finally, the workspace accommodative behaviours revealed in this research may further inform multinational organisations about what can be standardised and what should be localised when designing workspace in China. And this would particularly important for the resolving of global-local tension.

The research also contributes to academic research with new thinking about the relationship between culture and workspace design and management. Firstly, it viewed what happens outside and inside organisational settings in a systematic way and grasped several key issues to analyse.

Secondly, different workspace cognition and accommodation approaches from those in Western cultures such as UK, US and EU are empirically found. Typically, holistic approach in workspace evaluation, and secondary control in workspace accommodation are new field worth further research.

At the same time, the different effects of different levels of culture were explored and theorised. Further researchers might follow the theoretical framework of this research to further explore the cultural issues affecting workspace design and management, within a dynamic perspective.

8.3 Methodological reflections and limitations of the research

In the research, a combination of quantitative and qualitative methodologies was used. Quantitative methodologies included questionnaire surveys and coding of spatial

parameters. These methodologies enabled in-depth statistical analysis on the relationships between culture, workspace behaviours (both psychological and physical), and physical workspace characteristics. Qualitative data were collected through interviews and open-ended questions, which were used to help interpreting the findings.

In this research, employees' workspace preferences and expectations were analysed through linear regression analysis or bivariate correlation tests based on the notion that what matter to employees in the workspace are factors that may affect their overall workspace satisfaction. Things without significant connection with overall workspace satisfaction are of relatively lower importance. The method provides a dynamic approach to reflect real world issues, which may be more appropriate than cognitive importance rating for two reasons. Firstly, people are not machines. They might have different needs in different situations. In this research, it was empirically found that workspace issues important to employees in fact changed across offices. Secondly, what people say as important to themselves might not reflect their real needs because there may be important workspace issues they usually do not pay attention to consciously. For example, status symbols were rarely mentioned in the answers of open-ended questions in this research. However, a shortcoming of the methodology is being unable to analysis workspace preference at the individual level. Because of this, a missing link in this research in regard to knowledge about the cultural effect on workspace design is how individuals' values affect their personal workspace preferences.

Considering the length of the WCS questionnaire, in the fieldwork the full length of Hofstede's VSM questionnaire and Cameron and Quinn' OCAI questionnaire were not used. Rather, a new methodology was designed to measure cultures by abridging the VSM and OCAI questionnaires. Although the resulting cultural scores cannot be compared directly to Hofstede's cultural index and the findings of standard OCAI surveys, they were satisfactory for comparing the cultures of case studies quickly. The WCS survey measures cultures and workspace satisfaction in one questionnaire. This allowed testing the correlations between cultures and workspace satisfaction statistically. The statistical tests are impossible if different questionnaires are used to measure workspace satisfaction and cultures separately.

There are several limitations in this research. The first is only a limited number of cities were examined while other Chinese cities may perhaps reveal even greater cultural diversity. And in the study of organisations, the data covered only eight offices from two industries while other industries may perhaps reveal different tends. In the future, more regions across China and more different industries should be studied to more fully understand the cultural

dynamic inside China.

Further, in this research, due to limitations in the number of case studies, only a small number of correlations between workspace, satisfaction, expectations and cultures at the between-office level were generated. The research findings may not be sufficient to represent the general trend of cultural effects amongst organisations. In future, more organisations should be compared in order to generate more reliable causal relationship between cultures, workspace expectations, satisfaction, and workspace design, and to allow better understanding about how the importance of each workspace factor changes according to the cultural settings and workspace environment of organisations. This is important for the prediction of user needs and reaction towards workspace design. A rich set of data would help organisations to accommodate and motive their employees more effectively.

The second limitation is that, due to the restrains of organisational policy, the sample size of some case studies was small. This disabled the use of linear regression in *Study 2*. As a result, two different methods had to be used to identify employees' workspace preferences and expectations in the two studies. Their results therefore cannot be compared. More effort in future studies on methodological design to overcome the problem should be made.

The third limitation is the selection of case studies. Due to the limitation of available resource, two global companies from the manufacturing sector were accepted as case studies while the two graphic design companies are indigenous. Thus, the industrial difference may in fact be biased. For future research, Chinese organisations in the manufacturing sector may be included to refine the research findings.

Fourthly, the theoretical framework of this research is basically built based on western managerial and psychological theories, including Hofstede (2008), Cameron & Quinn (2006), Schein (1980), Rothbaum et al. (1982) and Nisbett et al. (2001). As such, some local managerial and psychological concepts may be missed out.

Finally, as per discussion in Chapter 7, there remain some unsolved questions to be further examined in the future.

8.4 Recommendation for future studies

based on above limitations, for future studies, several issues may be explored based on the theoretical foundation built by this research:

Firstly, the research found that the influence of physical space on workspace expectations was significant in case studies. Whether the same connection exists in other cultures may be further examined to enrich our knowledge about cultural effects. In fact, the adaptive behaviours of employees that appeared important in this research, have been largely ignored in the literature. Understanding the issue may help to better understand the performance of workspace.

Secondly, this research contains some unsolved questions resulting from new findings. They are listed as following:

1) In the research, satisfaction with surveyed workspace variables explained only 50% of the variance in overall workspace satisfaction in average. In some case studies, the variance in overall workspace satisfaction even could not be explained by the satisfaction with surveyed workspace variables. It is possible that other contextual factors had affected their employees' attitude towards the workspace. But what are they? And how important is each of them?

2) Case study shows that cultural values may not the solo factor affecting workspace preferences. But due to the limitation of sample size and methodology design, this research failed to statically test the correlation between workspace preference and cultural values. A future research addressing the remaining knowledge gap thereby is recommended.

3) In the case studies, seven out of eight offices show similar organisational cultures while their workspace characteristics were quite different. So, beside workspace, what could also affect the perception of organisational culture?

4) Follow up the above question, the correlations between the workspace and the perception of organisation were not fully found. What are remaining workspace factors pertaining to the perception of organisational culture?

5) The correlations between culture and workspace satisfaction at individual level were quite different from those between-office level. A similar difference was found in the correlations between culture and workspace expectation. Why this happens? And what do they imply?

6) According to Lee (2006), satisfaction is related to the gap between perceived reality and expectation. This suggests that the mechanism of how physical space affects workspace satisfaction may be related to the stress and difficulty that one psychologically changes oneself to fit the environment. However, the relationship

between changes of workspace expectation and satisfaction was not examined in this research. This could be an important research direction in the future.

7) *Forgiveness* appear to have strong correlation with organisational culture. This suggests its importance in the study of Chinese workspace. Yet, the concept is scarcely studied in the literature. Whether its importance reflects the distinctiveness of Chinese workspace cognition patterns and how to implement the concept in workspace design and management could be another important research topic.

Thirdly, this research takes a workspace user stance and therefore the accommodative strategies of organisations was not examined in this research. Key questions remain to be answered, which are: how do organisations develop their accommodation strategy? and how do they adjust their accommodation strategies to improve employee performance? Future research works may look at these aspects. Methodologies such as interviewing facility mangers of organisations and employee workshops could be helpful to answer these questions.

Fourthly, an examination on Chinese local management theories or psychological works may be necessary to enrich the understanding of Chinese workspace behaviours in the future. In addition, some other cultural frameworks such as the four types of organisational culture proposed by Deal and Kennedy (1982), can be used to examine the cultural issues from other perspectives.

Finally, as found by this research, workstation qualities and the social environment of workspace correlate highly with Chinese employees' overall workspace satisfaction. However, these preferences seem to challenge the new trend of workspace design, such as co-working, hot desking and home working, in which ownership of space, organisational identity, privacy and social group boundary sometimes are absent. A report from British Council for Office shows that in the UK, there is little variation in office workers' satisfaction levels whether they work in corporate offices or co-working spaces (Lang and Preece, 2016, also see Marmot et al., 2016). Yet, whether the same story is happening in China remains unclear.

Understanding how Chinese office workers adapt themselves to these new types of workspace could be particularly important for future research as these disruptive innovations are happening fast in the country. The concept of co-working was firstly introduced to China in 2015, by the end of 2017 there has been over 500 sizable co-working sites in China mainland and the number is expected to grow fast due to the boost of new start-ups (Brodie and Chong, 2018). It might also be expected that the new workspace

trends would in return affect ordinary workspace design by bringing in workspace concepts and new working patterns. For example, there has been some big companies in China introducing hot desks into their workspace.

Appendix I

Influence of national culture on work-related discourses

Weak Power Distance	**Strong Power Distance**
Decentralised decision structure; less concentration of authority	Centralised decision structures; more concentration of authority
Flat organisation pyramids	Tall organisation pyramids
Small proportions of supervisory personnel	Large proportions of supervisory personnel
Hierarchy established based on roles for convenience purpose	Hierarchy established based on roles existential inequality
Boss is a resourceful democrat, sees self as practical, orderly and relying on support	Boss is a well-meaning autocrat or good father, sees self as benevolent decision maker
Managers rely on personal experience and on subordinates	Managers rely on formal rules
Subordinates expect to be consulted	Subordinates expect to be told what to do
Subordinate-superior relations are pragmatic	Subordinate-superior relations are polarized and often emotional
Privileges and status symbols are frowned upon.	Privileges and status symbols are popular
Manual work has the same status as office work.	Office work is valued more than manual work.
Openness with information	Information constrained by hierarchy
Managers satisfied with careers	Managers dissatisfied with careers
Less role ambiguity and overload	Frequent role ambiguity and overload

Source: adapted from Hofstede (2008: p107-108)

Femininity	**Masculinity**
People work in order to live	People live in order to work
Work are relations and working conditions	Work are security, pay and interests
Managers are employees like others	Managers are cultural heroes
Management: intuition and consensus.	Management: decisive and aggressive
Solve conflicts by compromise and negotiation	Solve conflicts by letting the strongest win
More sickness absence	Less sickness absence
Rewards are based on equality	Rewards are based on equity
Preference for smaller organisations	Preference for larger organisations
More female engagement	Less female engagement
Leisure time is preferred over money	Money is preferred over leisure time
Humanise work by contact and cooperation	Humanise work by job content enrichment
Competitive in service industries, consulting, live product and biochemistry	Competitive manufacturing, price competition, heavy product and bulk chemistry.

Source: adapted from Hofstede (2008: p318)

Appendix I (continued)

Collectivism	**Individualism**
Employees are members of groups who will pursue their group's interest	Employees are "economic people" who will pursue the individual interest
Hiring and promotion decisions take an employee's in-group into account.	Hiring and promotion decisions are supposed to be based on skills and rules only
The employer-employee relationship is basically moral, like a family link	The employer-employee relationship is a contrast between parties on a labour market
Occupational mobility is lower	Occupational mobility is higher
Low employee commitment to organisation	High employee commitment to organisation
Emotional commitment to union	Relationship with union calculative
Relationship prevails over task	Task prevails over relationship
Employees perform best in in-groups	Employees perform best as individuals
Strong distinction between in-group and our-group: particularism	Relationship with colleague do not depend on group identity: universalism
Organisational success emphasises sharing information, open committing and political alliances	Organisational success emphasises withholding information, not open committing and avoiding alliances
Belief in collective decisions	Belief in individual decisions
Manage groups, and employees is seen in family and social context	Manage individuals, and employees is seen as individual
Direct appraisal of subordinates spoils harmony.	Honestly shares feelings about subordinates
Less control and concern over work condition	More control and concern over work condition

Source: adapted from Hofstede (2008: p244)

Short-term Orientation	**Long-term Orientation**
Quick results expected	Perseverance, persistence and thrift
Leisure is important	Leisure is not important
Status are not a major issue in relationships	Status and order observation form relationships
Social pressure toward spending	Thrift, being sparing with resources
Personal stability	Personal adaptability
Respect for traditions	Respect for circumstances
Protection of one's "face", concern with social and status obligations	Face are considered as a weakness，willing to subordinate oneself for a purpose

Source: adapted from Hofstede (2008: p360)

Appendix I (continued)

Week Uncertainty Avoidance	**Strong Uncertainty Avoidance**
Week loyalty to employer, short duration of employment	Strong loyalty to employer, long duration of employment
Prefer smaller organisations but less self-employment	Prefer larger organisations and much self-employment
Scepticism toward technological solution	Strong appeal of technological solution
Top managers involved in decision making	Top managers involved in operation
Power of supervisor depends on position and relationship	Power of supervisor depends on control of uncertainty
No more rules than strictly necessary	Emotional need for rules, even if they do not work
Entrepreneurs relatively free from rules	Entrepreneurs constrained by existing rules
Tolerance for ambiguity in structure and chaos in procedures	Highly value precision and formalisation in management
More new trademarks	Fewer new trademarks
Innovations welcomed but not necessarily taken serious	Innovations resisted but in accepted, applied consistently
Relationship orientation	Task oriented
Flexible working hour is not appealing	Flexible working hour is popular
Belief in generalists and common sense	Belief in experts and specialists

Source: adapted from Hofstede (2008: p169)

Appendix II

Coding of Cultural values mentioned by Chinese respondents in pilot study

Value	Coding in Chinese	Translation in English
1. Hybridity	海派	Ocean style
	开放	Open
	多样性, 多元, 杂糅, 兼收并蓄	Hybrid
	东西方融合	Combination of the East and the West
2. Westernisation	国际化	International
	洋	Westernised
3. Modernisation	时尚,潮流, 流行	Fashionable
	现代, 与时俱进	Modern
	发达, 繁荣	Developed
4. Calculating	精明, 斤斤计较	Smartly calculating
5. Respect for tradition	守传统	Respect for tradition
	保守	Conservative
6. Quality of life	精致, 细腻	Delicate
	小资情调	Bourgeoisie taste
	追求安逸	Like to stay in comfort
7. Material	拜金	Money-worship
8. Modest	低调, 内敛	Introvert
9. Pragmatism	务实, 实用主义	Pragmatic
	灵活	Flexible
10. Normative	秩序, 规则, 规范	Regulation
	排队	Queuing
11. Competition	快	Fast
	竞争	Competitive
12. Adventure spirit	突破,创新	Innovative
	开拓精神	Exploratory spirit
	先锋	Pioneer
13. Individualism	自我, 个人	Individualistic
	小家	Individual family
	明哲保身	Keeping oneself out of troubles
	政治中性	Political neutral

Appendix II (continued)

Value	Coding in Chinese	Translation in English
14. Benevolence	热心助人	Helpful
	真诚	Sincere
	厚德	Moral
15. Trustworthiness	诚信	Trust
	契约精神	Contract spirit
16. Courtesy	礼貌	Polite
17. Self-expression	腔调	Self-expression
	虚荣	Peacockery
18. Persistence	奋斗,进取,努力	Hard working
	自强	Self-cultivation
19. Thrifty	勤俭	Thrifty
20. Hierarchy	优越感	Superiority feeling
	两级分化	Polarisation
21. Egalitarian	平等	Equality
	公正	Justice
	公民社会	Democracy
22. Harmony	和谐	Harmony
23. Tolerance for others	包容	Tolerance
	求同存异	Diversity in harmony

Appendix III

Coding of Workspace elements mentioned by Chinese respondents in pilot study

Workspace elements	Coding of respondents' answers in Chinese
Location	
1. Surrounding food and entertainment	周边餐饮, 休闲配套
2. Transport & car park	交通,停车
The buildings	
3. Building appearance	建筑外观
4. Floor of the office	楼层
Indoor environment quality	
5. Air quality & ventilation	空气质量,通风
6. Lighting & brightness	明亮,采光
7. Thermal comfort	空调,制冷,温度
8. Acoustic comfort	安静,噪音
Office layout	
9. Openness	开敞
10. Communication	交流
11. Layout, workflow	格局,流线
12. Meeting space	会议室,讨论空间
13. Communicational convenience	沟通方便
14. Too close to supervisors, being monitored	太靠近领导,被监控
15. Flexibility，remote working	灵活,自由,移动办公
Aesthetics of interior design	
16. Interior decoration, colour, style, creative design, & displays	装饰,色彩,风格,创意,摆设
17. Culture, calligraphy	文化,书法
On-site amenities	
18. Library	图书室
19. Toilet	厕所
20. Outdoor space (Garden, courtyard, terrace)	花园,庭院,露台
21. Catering (Kitchen, canteen)	厨房,食堂
22. Breakout space & tea room	休息室,茶水间
23. Sports & entertainment	运动,娱乐
24. Green plants	绿化

Appendix III (continued)

Workspace elements	Coding of respondents' answers in Chinese
Workstation	
25. Amount of storage & file cabinet	存储空间,文件柜
26. Furniture comfort	座位舒适,桌椅
27. Space size, crowding & density	面积,空间,宽阔,拥挤
28. Views	景观,视野
29. ICT	网络,电话, WIFI
30. Status	个人地位
31. Privacy (versus interruption)	独立,私密,干扰,
Psychology	
32. Interpersonal relationship, atmosphere	人际关系,气氛,氛围
33. Sense of belonging	归属感
Property management	
34. Cleanness	干净,整洁
35. Maintenance	物业维护
36. Safety	可靠,安全
37. Lift	电梯
Overall experience	
38. Comfortable	环境舒适
39. Humanity	人性化

Appendix IV

Description of WCS questionnaire items

Constructs	Questionnaire items	Scale of rating	Source	Reference in the literature
Location & building	Location reflecting organisational power	5 = Very satisfied, 4 = Satisfied 3 = Neutral 1 = Very unsatisfied, 2 = unsatisfied	Chapter 3	
	Adjacent amenities			Lindholm and Gibler (2005)
	Accessibility of the building		Pilot study	Rothe et al. (2011)
	Building appearance			CABE and BCO (2005)
Functional comfort of office layout	Ease of communication	5 = Very satisfied, 4 = Satisfied 3 = Neutral 1 = Very unsatisfied, 2 = unsatisfied		Hofstede (2008)
	Ease of supervision		Pilot study	Hofstede (2008)
	Remote working possibility			Rothe et al. (2011)
On-site amenities	Green plants	5 = Very satisfied, 4 = Satisfied 3 = Neutral 1 = Very unsatisfied, 2 = unsatisfied 0 = N/A (no available)	Pilot study	IFMA (2012); Marmot and Eley (2000)
	Breakout space			
	Fitness facilities			
	Reception area			
	Catering			
	Library			
	Toilet			
Workstation	Indoor environmental quality	5 = Very satisfied, 4 = Satisfied 3 = Neutral 1 = Very unsatisfied, 2 = unsatisfied	Pilot study	Humphreys (2005)
	Furniture comfort			Frontczak et al. (2011)
	Space amount			Frontczak et al. (2011)
	Accesses to windows			Aries et al. (2010)
	Personalisation possibility			Brunia and Hartjes-Gosselink (2009)
	Privacy of personal workstation			Sundstrom and Sundstrom (1986)
	Expression of status			Sundstrom and Sundstrom (1986)
Psychological Comfort	Sense of belonging	5 = Very satisfied, 4 = Satisfied 3 = Neutral 1 = Very unsatisfied, 2 = unsatisfied	Pilot study	Vischer (2008)
	Aesthetics of interior design			Rafaeli and Vilnai-Yavetz (2004)
Property management	Cleanliness	5 = Very satisfied, 4 = Satisfied 3 = Neutral 1 = Very unsatisfied, 2 = unsatisfied 0 = N/A (no available)	Pilot study	Frontczak et al. (2011)
	Waiting time for lifts			Walden (2005)
Overall workspace satisfaction		5 = Very satisfied, 4 = Satisfied 3 = Neutral 1 = Very unsatisfied, 2 = unsatisfied		

Appendix III (continued)

Constructs	Questionnaire items	Scale of rating	Source	Reference in the literature
National / Regional Culture	PDI. Fear of boss vs. Challenging boss UAI. Normative vs. flexibility IDV. Group interest vs. Individual interest MAS. Quality of life vs. Career achievement LTO. Persistence vs. Quick results	2 or -2 = Strongly agree (two poles) 1 or -1 = Agree 0 = Neutral	Value Survey Modelu (VSM) 2013 questionnniare	Hofstede (2008)
Organisational Culture	Clan Adhocracy Market Hierarchy	5 = Strongly agree, 4 = Agree 3 = Neutral 1 = Strongly disagree, 2 = Disagree	The Organisational Culture Assessment Instrument (OCAI)	Cameron and Quinn(2006)
Demographic Characteristics	Gender	1 = Male, 2 = Female		
	Age	1 < 26; 2 = 26-35; 3 = 36-50; 4 > 50		
	Cities	1 = Shanghai, 2 = Guangzhou; 3 = Others cities		
	Migration background	1 = Aboriginal, 2 = Migrant		
	Industry	1 = Professional service, 2 = Real estate 3 = Finance and insurance 4 = Manufacturing 5 = Education and media 6 = Government agencies 7 = Others	Table 1-6 in China Labour Statistics Year Book, 2012	National Bureau of Statistics of China and Ministry of Human Resource and Social Security (2013)
	Office type	1 = Cellular office 2 = Office shared between 2 to 6 people 3 = Open-plan office 4 = I don't have fixed workspace	AMA Office Evaluation Survey Questionnaire	Alexi Marmot Association (2011)

Appendix V

WCS Space Coding Sheet

Organisation: _____ Date:_____

Location	☐ 1. Business centre or CBD		☐ 2. Industrial park	
	☐ 3. Other city area close to clients		☐ 4. Other city area for other considerations	
Accessibility	☐ 1. Drive only	☐ 2. City bus or company shuttles bus		☐ 3. Bus + subway
Building	☐ 1. Prestigious building		☐ 2. Class-A building	
	☐ 3. Class-B building		☐ 4. Lowe-end office building	
	☐ 5. Non-office building			
Net interior area of the visited flood (m^2)				
Desk number planned on the visited floor				
Net interior area per desk (m^2)				
Office type	☐ 1. Corridor office	☐ 2. Open-plan with cellular rooms along sides		☐ 3. Mainly open-plan
Place of management	Top managers	☐ 1. Close to employees	☐ 2. Separate from employees	
	Middle managers	☐ 1. Close to employees	☐ 2. Separate from employees	
Visual accessibility	Top managers	☐ 1. Not available	☐ 2. Available	
	Middle managers	☐ 1. Not available	☐ 2. Available	
Access to windows		1. Superiors have the priority		
		2. Ordinary employees have the priority		
		3. Everyone can access windows equally		
Workspace area per desk (m^2)	Top managers			
	Middle managers			
	Ordinary employees			
Place of meeting rooms	☐ 1. Close to working areas			
	☐ 2. Separate from the working area but on the same floor			
	☐ 3. on other floors			
	☐ 4. Having no meeting room in the office			
Expression of organisational identity		☐ 1. Neutral	☐ 2. Perceivable	☐ 3. Distinctive
Colours	☐ 1. Cool	☐ 2. Vivid	☐ 3. Warm	☐ 4. Neutral
% of enclosed rooms				
% of open-plan space				
% of floor-based support area				
% of primary circulation area				

Appendix V (continued)

Availability of on-site amenities	Breakout space	☐ 1. Not available	☐ 2. Available	☐ 3. Good	
	Catering	☐ 1. Not available	☐ 2. Available	☐ 3. Good	
	Canteen	☐ 1. Not available	☐ 2. Available	☐ 3. Good	
	Fitness facilities	☐ 1. Not available	☐ 2. Available	☐ 3. Good	
	Library	☐ 1. Not available	☐ 2. Available	☐ 3. Good	
	Shower room	☐ 1. Not available	☐ 2. Available	☐ 3. Good	
	Nursing room	☐ 1. Not available	☐ 2. Available	☐ 3. Good	
Workstation	Shape	☐ 1. L shape		☐ 2. Rectangular	
	Partition height	☐ 1. No partition	☐ 2. Low	☐ 3. Medium	☐ 4. High
	Partition direction	☐ 1. No partition		☐ 2. Front	
		☐ 3. Two arms of “L” shape		☐ 4. Front, left and right	
Personalisation					
Desk ID: _____	Pictures of family or friend			☐ 1. Not	☐ 2. Yes
	Artwork including paintings, posters or cartoon			☐ 1. Not	☐ 2. Yes
	Trinkets like presents, toys or dolls			☐ 1. Not	☐ 2. Yes
	Plants or fish tank			☐ 1. Not	☐ 2. Yes
	Gadgets like a small fun or extra heater			☐ 1. Not	☐ 2. Yes
	Self-care like food production box or tower			☐ 1. Not	☐ 2. Yes
	Trophies or certifies showing achievement			☐ 1. Not	☐ 2. Yes
	Work accessories like calendar of fileting baskets			☐ 1. Not	☐ 2. Yes

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